EVELYN

SYLVA

1664

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By the Council *of the* ROYAL SOCIETY *of* London *for* Improving of Natural Knowledge.

ORdered, That the *Book* written by *John Evelyn* Esq; *Fellow* of this *Society*, Entituled *SYLVA*; Or a *Discourse* of *Forest-Trees*, and the Propagation of *Timber* in His *Majesties* Dominions: To which is annexed *POMONA*; Or an *Appendix* concerning *Fruit-Trees* in relation to *Cider*, the Making and several ways of Ordering it, be printed by *John Martyn* and *James Allestry*, Printers to the said *Society*.

Dat' die 3° Mens. *Febr.* Anno 1 6 6 $\frac{3}{4}$.

BROUNCKER, P. R. S.

34072

SYLVA,

Or A DISCOURSE Of

FOREST-TREES,

AND THE

Propagation of Timber

In His MAJESTIES Dominions.

By *J. E.* Esq;

As it was Deliver'd in the *ROYAL SOCIETY* the xv^th^ of *October*, CIↃIↃCLXII. upon Occasion of certain *Quæries* Propounded to that *Illustrious Assembly*, by the *Honorable* the Principal *Officers*, and *Commissioners* of the *Navy*.

To which is annexed

POMONA: Or, An *Appendix* concerning *Fruit-Trees* in relation to *CIDER*; The *Making* and several ways of *Ordering* it.

Published by express Order *of the* ROYAL SOCIETY.

ALSO

KALENDARIUM HORTENSE; Or, *Gard'ners Almanac*; Directing *what* he is to do *Monethly* throughout the *Year*.

——*Tibi res antiquæ laudis & artis*
Ingredior, tantos ausus recludere fonteis. Virg.

LONDON, Printed by *Jo. Martyn*, and *Ja. Allestry*, Printers to the *Royal Society*, and are to be sold at their Shop at the *Bell* in S. *Paul*'s Church-yard, MDCLXIV.

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TO THE

KINGS Most Sacred *MAJESTY*

Charles the Second.

FOR *To whom, Sir, with more equal right ought I to Present this Publique Fruit of your* ROYAL SOCIETY, *then to its* Royal *FOUNDER? and this* Discourse *of* Trees, *then to your Sacred* Majesty, tanquam NEMORUM VINDICI? *As of old they pay'd their* Devotions HERCULI & SYLVANO; *since* You *are our* Θεὸς ὑλικὸς, Nemorensis Rex, *as having* once *your* Temple, *and* Court *too under that* Holy-Oak *which you Consecrated with your* Presence, *and* We celebrate *with just* Acknowledgment *to* God *for your* Preservation.

Cato de RR. cap. 73. *Aurel. Vict. Gloss. Phil. apud Tranquill.* And so *Nemestinus Deus Nemorum, Arnob.* lib. 4.

But your Majesty *has yet another* Title *to this* Work, *and to all it pretends to; as having (like another* Cyrus) *by your own Royal* Example, *exceeded all your* Predecessors *in the* Plantations *which you have already made, and now design, beyond (I dare affirm it) all the* Monarchs *of this* Nation *since the* Conquest *of it. And indeed, what is there more* August, *more worthy of your* Majesty, *or more becoming our* Imitation? *then whilst you are thus solicitous for our* Instruction, *we pursue your* Majesties *great* Example *with that* Veneration *which is due to it? and by* culti-

vating *our decaying* Woods, *contribute to your* Power, *as to our greatest* Wealth *and* Safety; *since, whiles your* Majesty *is furnish'd to send forth those* Argo's, *and* Trojan Horses, *about this your* Island, *we are to fear nothing from without it; and whilest* We *remain obedient to your* Commands *and great* Example, *nothing from within it: For, as no* Jewel *in your Majesties resplendent* Crown *can render you so much* Lustre *and* Glory *as your regards to* Navigation; *so, nor can any thing impeach your* Navigation, *and the* Reputation *of* That, *whiles you continue thus careful of your* Woods *and* Forests. *I shall add no more* Sir *to* This, *then to supplicate your* Majesties *gracious* Acceptance *of my* Obedience *to the* Commands *of your SOCIETY, who impos'd this* Province *on,*

Argon, l. 1. That famous *Ship* built of the *Dodonæan Oak.*

SIR,

Your *Majesties* ever *Loyal,* most *Obedient*, and Faithful *Subject*, and *Servant*

J. EVELYN.

Says-Court, May 29. 1663.

TO THE

READER.

AFter what the *Frontiſpece* and *Porch* of this *Wooden Edifice* preſents you, I ſhall need no farther to repeat the *Occaſion* of this following *Diſcourſe*: I am only to acquaint you, That as it was deliver'd to the ROYAL SOCIETY by an unworthy *Member* thereof, in obedience to their *Commands*, by the ſame it is now publiſh'd without any further Proſpect. And the *Reader* is to know, That if theſe dry *ſticks* afford him any *Sap*, it is one of the *leaſt* and *meaneſt* of thoſe *Pieces* which are every day produc'd by that *Illuſtrious Aſſembly*, and which enrich their *Collections*, as ſo many *Monuments* of their accurate *Experiments*, and Publique Endeavours, in order to the production of *real* and uſeful *Theories*, the Propagation of *Natural Science*, and the honour of their *Inſtitution*. If to this there be any thing ſubjoyn'd *here*, which may a while beſpeak the patience of the *Reader*, it is only for the Encouragement of an *Induſtry*, and worthy *Labour*, too much in our days neglected, as haply eſteem'd a conſideration of too ſordid and vulgar a nature for *Noble Perſons* and *Gentlemen* to buſie themſelves withal, and who oftner find ways to *fell* down and deſtroy their *Trees* and *Plantations*, then either to *repair* or *improve* them.

But what ſhall I then ſay of our late prodigious *Spoilers*, whoſe furious devaſtation of ſo many goodly *Woods* and *Foreſts* have left an Infamy on their *Names* and *Memories* not quickly to be forgotten! I mean our unhappy *Uſurpers*, and injurious *Sequeſtrators*; Not here to mention the deplorable neceſſities of a Gallant and Loyal *Gentry*, who for their *Compoſitions* were (many of them) compell'd to add yet to this *Waſte*, by an inhumane and unparallel'd *Tyranny* over them, to preſerve the poor remainder of their *Fortunes*, and to find them *Bread*.

Nor

Nor was it here they desisted, when, after the fate of that beautiful *Grove* under *Green-wich Castle*, the Royal *Walk* of *Elms* in St *James*'s *Park*,

Mr. Waller's Poem of St. *James*'s Park.

That living Gallery of aged Trees,

(as our excellent *Poet* calls it) was once proposing to the late *Council of State* to be cut down and sold, that with the rest of His *Majesties* Houses already demolish'd, and mark'd out for destruction, His *Trees* might likewise undergo the same destine, and no footsteps of *Monarchy* remain unviolated. This is a *Truth*; which coming by chance to hear of, I so conjur'd a powerful *Member* of it (and one who was to strike a principal *stroake* in this barbarous *Execution*) that if my *Authority* did not rescue those *Trees* from the *Ax*, sure I am, my *Arguments* did abate the *Edge* of it; nor do I ever pass under that Majestical *shade* but methinks I *hear* it salute me as once the *Hamadryad* did the good *Rinaldo*,

Tasso, *Cant.* 18.

Ben caro giungi in queste chiostre amene.
Questa selva, che dianzi era si negra,
Vedi che tutto al tuo venir s' allegre,
E'n più leggiadre forme è revestita.

It is from hence you may calculate what were the Designs of those excellent *Reformers*, and the care these great *States-men* took for the preservation of their *Countrey*, when being *Parties* in the *Booty* themselves, they gave way to so dishonourable and impolitic a *waste* of that *Material*, which being left intire, or husbanded with discretion, had prov'd the best support and defence of it. But this (say they) was the effect of *War*, and in the heighth of our *Contentions*. No, it was a *late* and cold *deliberation*, and long after all had been subdu'd to them; nor could the most implacable of *Enemies* have expres's'd a more barbarous Resolution.

We read of the great *Xerxes*, that passing Conquerour through *Achaia*, he would not suffer his *Army* to violate so much as a *Tree* of his *Adversaries*; it being observ'd

by

by the *Ancients*, that the *Gods* did never permit him to escape unpunish'd who was injurious to Groves, *tanquam sacros ex vetustate*: What became of *Agamemnons* Host after his spoil of the *Woods* at *Aulis*? *Histories* tell us *Cleomenes* died mad; the *Tamassæan Genius* became *proverbial*; and the Mighty *Cæsar* himself carried ('tis thought) the malediction of the incensed *Gauls* to his *Funeral Pile*, for the havock he committed at *Massilia*, when he fell'd down those goodly *Oaks* before the face of the suppliant *Priests*, and the *cursing People*: *Temessæus Genius aderit.*

----------*Quis enim læsos impune putaret*
Esse Deos? *Lucan*, lib. 3.

But lest this be charg'd with *Superstition*, because the *Instances* are *heathen*; It was a more noble and remarkable, as well as recent *Example*, when at the *Siege* of *Breda*, the late famous General *Spinola* commanded his *Army* not to violate a *Tree* of a *Wood* belonging to the *Prince* of *Orange* there, though a reputed *Traytor*, and in open defiance with his *Master*. To be short, we read, That when *Mithridates* but deliberated about the cutting down of some stately *Trees* which grew neer *Patara*, a *City* of *Lycia*, though necessitated to it for the building of *Warlike Engines* with them, being *terrified* in a *Vision*, he desisted from his purpose. It were to be wished *These*, or the like *Examples*, might have wrought some *Effects* upon the sacrilegious *Purchasers*, and disloyal *Invaders*, in this *Iron-age* amongst us, who have lately made so prodigious a *spiol* of those goodly *Forests*, *Woods*, and *Trees* (to satisfie an impious and unworthy *Avarice*) which being once the Treasure and Ornament of this *Nation*, were doubtless reserv'd by our more prudent *Ancestors* for the repairs of our floating *Castles*, the *safeguard* and boast of this renouned *Island*, when *Necessity*, or some imminent *Peril* should threaten it, or call for their Assistance; and not to be devour'd by these Improvident *Wretches*, who, to their eternal Reproach, did (with the *Royal Patrimony*) swallow likewise *Gods own Inheritance*; but whose *Sons* and *Nephews* we have liv'd to see as hastily disgorge

Quæ tibi factorum Pœnas instare tuorum Vaticinor: -- *Vide Met.* l. 8. *Apollon.* l. 2. *Argonaut.*

them again; and with it all the rest of their *Purchases*, which otherwise they might securely have enjoy'd: But this *in terrorem* only, and for caution to *Posterity*; whiles I leave the *Guilty* to their proper *Scorpions*, and to their *Erisichthonian* fate, or that of the inexorable *Paræbius*,

Prosternit Quercum funestam quam sibi Nympha
Pignoribúsque suis fecit--------

the vengeance of the *Dryads*, and to their *Tutelar* better *Genius*, if any yet remain, who love the solid Honour and Ornament of their *Country*: For what could I say less, and * *Wood-born* as I am, in behalf of those *sacred Shades*, which both grace our *Dwellings*, and protect our *Nation?*

* *At* Wotton *in* Surrey.

But to turn this just *Indignation* into *Prayers*, and address my self to our better-natur'd *Country-men:* May such *Woods* as do yet remain intire be carefully *Preserv'd*, and such as are destroy'd, sedulously *Repair'd*. It is what every Person who is *Owner* of *Land* may contribute to, and with infinite delight, who are touch'd with that laudable *Ambition* of imitating their most illustrious *Ancestors*, whose *Names* we find mingl'd amongst *Kings* and *Philosophers*, *Patriots* and good *Commonwealths*-Men: For such were of old *Solomon*, *Cyrus*, and *Numa*; *Licinius* sir-named *Stolo*, *Cato*, and *Cincinnatus*; the *Pisoes*, *Fabii*, *Cicero*, *Plinies*, and a thousand more whom I could ennumerate, that disdain'd not to exercise themselves in these *Rusticities*, as esteeming it the greatest accession of *Honour* to dignifie their lasting *Names* with such *Rural* marks as have consecrated their *Memories*, and transmitted them to us through so many *Ages* and *Vicissitudes* of the World.

Vi. *Petrarch. de Remed. utriusque fortunæ*, li. 1. dial. 57.

Let none therefore repute this *Industry* beneath him, or as the least indignity to the rest of his *Qualities*, which so great *Persons* have honour'd and cultivated with that affection and ingenuity.

Multæ etiam istarum Arborum meâ manu sunt satæ: Cyrus *ad Lysand. Cicer. ex* Xenoph.

The famous *Answer* which *Cyrus* gave to *Lysander* will sufficiently justifie that which I have said, and what I farther recommend to such *Gentlemen* as resolve to be *Planters*, *viz.* That they do not easily commit themselves to

the

ſole *Dictates* of their ignorant *Hinds* and *Servants*, who are (generally ſpeaking) more fit to Learn then to Inſtruct. *Male agitur cum Domino quem Villicus docet*, was was an Obſervation of old *Cato*'s; and 'twas *Iſchomachus* who told *Socrates* (diſcourſing one day upon a like ſubject) *That it was far eaſier to* Make *then to* Find *a good* Husband-man: I have often prov'd it ſo in *Gard'ners*; and I believe it will hold in moſt of our *Country* Employments: We are to exact *Labour*, not *Conduct* and *Reaſon*, from the greateſt part of them; and the buſineſs of *Planting* is an *Art* or *Science* (for ſo *Varro* has ſolemnly defin'd it) and That exceedingly wide of Truth, which (it ſeems) many in his time accounted of it; *facillimam eſſe, nec ullius acuminis Ruſticationem*, an eaſie and inſipid Study. It was the ſimple *Culture* only, with ſo much difficulty retriv'd from the late confuſion of an inteſtine and bloody *War* like *Ours*, and now put in *Reputation* again, which made the noble *Poet* write

Vide & Curtium, l. 7. &c.

De R. R.

--------*Verbis ea vincere magnum* Georg. 1.
Quam ſit, & anguſtis hunc addere rebus honorem.

Seeing, as the *Orator* does himſelf expreſs it, *Nihil eſt homino libere dignius*; There is nothing more becoming and worthy of a *Gentleman*.

In agris erant tunc Senatores. Cic. *de* Senect.

And thus you have in part what I had to produce in extenuation of this my *Adventure*, that *Animated* with a *Command*, and Aſſiſted by divers *Worthy Perſons* (whoſe *Names* I am prone to *celebrate* with all juſt *Reſpects*) I have preſumed to caſt in my *Symbol*; and which, with the reſt that are to follow, may (I hope) be in ſome degree ſerviceable to *him* (who e're the happy *Perſon* be) which ſhall oblige the *World* with that compleat *Syſteme* of *Agriculture*, which as yet ſeems a *deſiderate*, and wanting to its perfection. It is (I aſſure you) what is one of the Principal *Deſigns* of the *ROYAL SOCIETY*, not in this *Particular* only, but through all the *Liberal* and more uſeful *Arts*; and for which (in the eſtimation of all equal *Judges*) it will merit the greateſt of *Encouragements*; that ſo at laſt what the Learned *Columella* has

wittily reproach'd, and complain'd of, as a defect in that *Age* of *his*, concerning *Agriculture* in general, and is applicable *here*, may attain its desired *Remedy* and *Consummation* in *This* of *Ours*.

Præfat. ad P. Sylvium; which I earnestly recommend to the serious perusal of our *Gentry*. *Et mihi ad sapientis vitam proximè videtur accedere.* Cic. *de Senectute.*

Sola enim Res Rustica, quæ sine dubitatione proxima, & quasi consanguinea Sapientiæ est, tam discentibus egeat, quam magistris: Adhuc in Scholis Rhetorum, & Geometrarum, Musicorúmque; Vel quod magis mirandum est, contemptissimorum vitiorum officinas, guloſiùs condiendi cibos, & luxurioſiùs fercula struendi, capitúmque & capillorum concinnatores non solum esse audivi, sed & ipse vidi; Agricolationis neque Doctores qui se profiterentur, néque Discipulos cognovi. But this I leave for our *Gallants* to Interpret, and should now apply my self to the *Directive* Part, which I am all this while bespeaking, if after what I have said in the several *Paragraphs* of the ensuing *Discourse* upon the *Argument* of *Wood*, it might not seem superfluous to have *præmised* any thing *here* for the Encouragement of so becoming an *Industry*: Let me be permitted to say, There is sufficient for *Instruction*, and more then is extant in any *Collection* whatsoever (*absit verbo invidia*) upon this *subject*; abstracting things *Practicable*, of solid *use*, and *material*, from the *Ostentation* and impertinences of *Writers*; who receiving all that came to hand on *trust*, to swell their monstrous *Volumes*, have hitherto impos'd upon the credulous *World*, without *conscience* or *honesty*. I will not exasperate the *Adorers* of our ancient and late *Naturalists*, by repeating of what our *Verulam* has justly pronounc'd concerning their *Rhapsodies* (because I likewise honor their painful *Endeavours* and am oblig'd to them for much of that I know) nor will I (wth some) reproach *Pliny*, *Porta*, *Cardan*, *Mizaldus*, *Cursius*, and many others of great *Names* (whose *Writings* I have diligently consulted) for the *Knowledg* they have imparted to me on this Occasion; but I must deplore the time which is (for the most part) so miserably lost in pursuit of their *Speculations*, where they treat upon this *Argument*: But the *World* is now advis'd, and (blessed be *God*) infinitely redeem'd from that base and servile submission of our noblest *Faculties* to their blind *Traditions*. This, you will

will be apt to ſay, is a haughty *Period*; but whiles I affirm it of the *Paſt*, it juſtifies and does honor to the *Preſent* Induſtry of our *Age*, and of which there cannot be a greater and more emulous *Inſtance*, then the *Paſſion* of His *Majeſty* to encourage His *Subjects* in all that is laudable and truly emolumental of this nature.

It is not therefore that I here preſume to inſtruct *Him* in the management of that great and auguſt *Enterpriſe* of reſolving to *Plant* and repair His ample *Foreſts*, and other *Magazines* of *Timber*, for the benefit of His *Royal Navy*, and the glory of His *Kingdoms*; but to preſent to His *Sacred Perſon*, and to the *World*, what *Adviſes* I have received from others, obſerved my *ſelf*, and moſt Induſtriouſly *Collected* from a ſtudious propenſity to ſerve as one of the leaſt *Intelligences* in the ampler *Orb* of our *Illuſtrious Society*, and in a *Work* ſo Important and Neceſſary.

J. E.

SYLVA:

Amico chariſsimo *Johanni Evelyno* Armigero,
è Societate Regali Londini. J. Beale, *S. P. D.*
In Sylvam.

FAre age quid cauſæ eſt quod tu Sylveſtria *pangis*,
Inter Sylvanos, *capripedéſque* Deos ?
Inter Hamadryadas *lætus*, Dryadáſque *pudicas*,
Cum tua Cyrrhæis *ſit* Chelys *apta modis* !
Scilicet hoc cecinit numeroſus Horatius *olim*,
Scriptorum Sylvam *quòd Chorus Omnis amat.*
Eſt locus ille Sacer Muſis, & Apolline *dignus*,
Prima dedit Summo Templa *Sacranda* Jovi.
Hinc quoque nunc Pontem Pontus *non reſpuit ingens*,
Stringitur Oceanus, *corripitúrque Salum.*
Hinc novus Heſperiis *emerſit mundus in oris*, *Gen. 1. c. 2.*
Effuditque auri flumina larga probi.
Hinc exundavit diſtento Copia cornu,
Qualem & Amalthææ *non habuere ſinus.*
Sylva *tibi curæ eſt, grata &* Pomona *refundit*
Auriferum, roſeum, purpureúmque nemus.
Illa famémque ſitímque abigens expirat odores,
Quales nec Medus, *nec tibi mittit* Arabs.
Ambroſiam præbent modò cocta Cydonia, *Tantum*
Comprime, Nectareo poma *liquore fluunt.*
Progredere, O Sœcli Cultor *memorande futuri*,
Felix Horticolam *ſic imitere* Deum.

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SYLVA:

OR, A

DISCOURSE

OF

Foreſt-Trees,

AND

The Propagation of *Timber* in His *MAJESTIES* Dominions, *&c.*

Tuque ades, inceptúmque una decurre laborem,
O decus, ô famæ meritò pars maxima noſtræ
CAROLIDE, pelagóq; volans da vela petenti:
Da facilem curſum, atque audacibus annue cœptis:
Ignavóſque viæ mecum miſeratus agreſtes
Ingredere, & votis jam nunc aſſueſce vocari.

The Introduction.

Introduction.

1. SInce there is nothing which ſeems more fatally to threaten a Weakning, if not a Diſſolution of the ſtrength of this famous and flouriſhing *Nation*, then the ſenſible and notorious decay of her *Wooden-walls*, when either through *time*, *negligence*, or other *accident*, the preſent *Navy* ſhall be worn out and impair'd; it has been a very worthy and ſeaſonable Advertiſement in the Honourable the principal *Officers* and *Commiſſioners*, what they have lately ſuggeſted to this *Illuſtrious Society*, for the timely prevention and redreſs of this intollerable defect. For it has not been the late increaſe of *Shipping* alone, the multiplication of *Glaſs-works*, *Iron-Furnaces*, and the like, from whence this im-politick diminution of our *Timber* has proceeded; but from the diſproportionate

ſpreading of *Tillage*, cauſed through that prodigious havock made by ſuch as lately profeſſing themſelves againſt *Root* and *Branch* (either to be re-imbours'd of their *holy* purchaſes, or for ſome other ſordid reſpect) were tempted, not only to fell and cut down, but utterly to grub up, demoliſh, and raze, as it were, all thoſe many goodly *Woods*, and *Foreſts*, which our more prudent *Anceſtors* left ſtanding, for the Ornament, and ſervice of their *Country*. And this devaſtation is now become ſo *Epidemical*, that unleſs ſome favourable *expedient* offer it ſelf, and a way be ſeriouſly, and ſpeedily reſolv'd upon, for the future repair of this important *defect*, one of the moſt glorious, and conſiderable *Bulwarks* of this *Nation*, will, within a ſhort time be totally wanting to it.

2. To attend now a ſpontaneous ſupply of theſe decay'd *Materials* (which is the vulgar, and natural way) would coſt (beſides the *Incloſure*) ſome entire *Ages* repoſe of the *Plow*: Therefore, the moſt expeditious, and obvious *Method*, would (doubtleſs) be by one of theſe two ways, *Sowing*, or *Planting*. But, firſt, it will be requiſite to agree upon the *Species*; as what *Trees* are likely to be of greateſt *Uſe*, and the fitteſt to be cultivated; and then, to conſider of the *Manner* how it may beſt be effected. Truly, the *waſte*, and *deſtruction* of our *Woods*, has been ſo univerſal, that I conceive nothing leſs then an univerſal *Plantation* of all the ſorts of *Trees* will ſupply, and well encounter the defect; and therefore, I ſhall *here* adventure to ſpeak ſomething in general of them *all*; though I chiefly inſiſt upon the propagation of ſuch only as ſeem to be the moſt wanting, and ſerviceable.

3. I diſtribute them, therefore, into theſe two *Claſſes*, the *Dry*, and the *Aquatic*; both of them applicable to the ſame civil uſes of *Building*, *Utenſils*, *Ornament* and *Fuel*; for to dip into their *Medicinal* virtues is none of my *Province*.

Among the *dry*, I eſteem the more principal, and ſolid, to be the *Oak*, *Elme*, *Beech*, *Aſh*, *Cheſs-nut*, *Wall-nut*, *&c.* The leſs principal, the *Service*, *Maple*, *Lime-tree*, *Horn-beam*, *Quick-beam*, *Birch*, *Haſel*, *&c.* together with all their *ſub-alternate*, and ſeveral kinds.

> *Sed neque quàm multæ ſpecies, nec nomina quæ ſint*
> *Eſt numerus*, Geor.

Of the *Aquatical*, I reckon the *Poplars*, *Aſp*, *Alder*, *Willow*, *Sallow*, *Oſier*, *&c.* Then I ſhall add a word or two, for the encouragement of the planting of *Fruit-trees*, together with ſome leſs *vulgar*, but no leſs *uſeful* Trees, which, as yet are not *endenizon'd* amongſt us, or (at leaſt) not much taken notice of: And in purſuance hereof, I ſhall obſerve this order: Firſt, to ſhew how they are to be *Raiſed*, and then to be *Cultivated*: By *Raiſing*, I underſtand the *Seed* and the *Soil*; by *Culture* the *Planting*, *Fencing*, *Watering*, *Dreſſing*, *Pruning* and *Cutting*; of all which briefly.

And

And firſt for their *Raiſing*, ſome there are

——— *nullis hominum cogentibus, ipſæ*

Sponte ſua veniunt—— Specifying according to the various diſpoſition of the *Air*, and *Soil.*

Pars autem poſito ſurgunt de ſemine. As the *Oak*, *Cheſs-nut*, *Aſh*, *&c.*

Pullulat ab radice aliis denſiſſima Sylva. As the *Elme*, *Alder*, *&c.* and there are others

Nil radicis egent——— Growing without any ſuch Roots; as *Willows*, and all the *Vimineous* kinds, which are raiſed of *Sets* only.

Hos natura modos primùm dedit——For thus we ſee there are more ways to the *Wood* then one; and *Nature* has furniſh'd us with variety of expedients.

4. But it has been ſtifly controverted by ſome, whether were better to raiſe *Trees* for *Timber*, and the like uſes, from their *Seeds* and firſt *Rudiments*; or to *Tranſplant* ſuch as we find have either rais'd themſelves from their *Seeds*, or ſpring from the *Mother-roots.* Now, that to produce them immediately of the *Seed* is the better way, theſe *Reaſons* may ſeem to evince.

Firſt, becauſe they *take* ſooneſt. *Secondly*, becauſe they make the ſtraighteſt, and moſt uniform ſhoot. *Thirdly*, becauſe they will neither require *ſtaking*, nor *watering* (which are two very conſiderable *Articles*) and *laſtly*, for that all *tranſplanting* (though it much improve *Fruit-trees*) unleſs they are taken up the firſt Year, or two, is a conſiderable impediment to the growth of *Foreſt-trees.* And, though it be true that divers of thoſe which are found in *Woods*, eſpecially *Oaklings*, young *Beeches*, *Aſh*, and ſome others, ſpring from the ſelf-ſown *maſt* and *keys*; yet, being for the moſt part dropp'd, and diſſeminated amongſt the half-rotten ſticks, muſty leaves, and perplexities of the *mother-roots*, they grow ſcraggy; and being over-dripp'd become ſqualid and moſſie, which checks their growth, and cauſes them to dwindle:

Creſcentíque adimunt fœtus, uruntque ferentem.

Nor can their roots expand, and ſpread themſelves as they would, do if they were ſown, or had been planted in a more open, free, and ingenuous *Soil.* And that this is ſo, I do affirm upon *Experience*, that an *Acorn* ſown by hand in a *Nurſery*, or ground where it may be free from theſe encumbrances, ſhall in two or three Years out-ſtrip a *Plant* of twice that age, which has either been ſelf-ſown in the *Woods*, or removed; unleſs it fortune, by ſome favourable accident, to have been ſcatter'd into a more natural, penetrable, and better qualified place: But this diſproportion is yet infinitely more remarkable in the *Pine*, and the *Wall-nut-tree*, where the *Nut* ſet into the ground ſhall certainly overtake a *Tree* of ten years growth which was planted at the ſame inſtant; and this is a *Secret* ſo generally miſ-repreſented by moſt of thoſe who have treated of theſe ſort of *Trees*, that I could not ſuffer it to

paſs over without a particular *remark*; ſo as the noble *Poet* (with pardon for receding from ſo venerable *Authority*) was certainly miſtaken, when he delivers this obſervation as *univerſal*, to the prejudice of *Sowing*, and raiſing *Woods* from their Rudiments:

Nam quæ ſeminibus jactis ſe ſuſtulit arbos
Tarda venit; ſeris factura nepotibus umbram.

Geor. *l.* 2.

CHAP. I.

Of the Seed.

Seed. 1. BUt to commence with the *Method* propos'd: Chuſe your *Seed* of that which is perfectly *mature*, *ponderous* and *ſound*; commonly that which is eaſily ſhaken from the boughs, or gathered about *November*, immediately upon its ſpontaneous fall, is beſt, and does (for the moſt part) direct to the proper ſeaſon of *interring*, *&c.* according to the *Inſtitution* of *Nature* her ſelf:

Nam ſpecimen ſationis, & inſitionis origo
Ipſa fuit rerum primum natura creatrix:
Arboribus quoniam baccæ, glandêſque caducæ
Tempeſtiva dabant pullorum examina ſubter, &c.

Lucret. *l.* 5.

Yet this is to be conſider'd, that if the *place* you ſow in be too cold for an *Autumnal* ſemination, your *Acorns*, *Maſt*, and other Seeds may be prepared for the *Vernal* by being barrell'd, or potted up in moiſt *Sand* or *Earth ſtratum* S. S. during the *Winter*; at the expiration whereof you will find them *ſprouted*; and being committed to the Earth, as apt to *take* as if they had been ſown with the moſt early: by this means, too, they have eſcaped the *Vermine* (which are prodigious devourers of *Winter* ſowing) and will not be much concern'd with the increaſing heat of the *Seaſon*, as ſuch as being crude, and *unfermented* are newly ſown in the beginning of the *Spring*; eſpecially in hot and looſe Grounds; being already in ſo fair a progreſs by this artificial preparation; and which (if the proviſion to be made be very great) may be thus manag'd. Chuſe a fit piece of *Ground*, and with boards (if it have not that *poſition* of it ſelf) deſign it three foot high; lay the firſt foot in fine Earth, another of Seeds, *Acorns*, *Maſt*, *Keys*, *Nuts*, *Haws*, *Holly-berries*, *&c.* promiſcuouſly, or ſeparate, with (now, and then) a little *Mould* ſprinkled amongſt them: The third foot wholly Earth: Of theſe preparatory *Magazines* make as many, and as much larger-ones as will ſerve your turn, continuing it from time to time as your *ſtore* is brought in. The ſame may you alſo do by burying your Seeds in *Sand*, *Barrelling*

ling them (as I ſaid) in *Tubs*, or laid in heaps in ſome deep *Cellar* where the rigour of the *Winter* may leaſt prejudice them; and I have fill'd old *Hampers*, *Bee-hives*, and *Boxes* with them, and found the like advantage, which is to have them ready for your *Seminary*, as before hath been ſhew'd, and exceedingly prevent the ſeaſon.

2. But to purſue this to ſome farther Advantage; as to what concerns the election of your *Seed*, It is to be conſider'd, that there is vaſt difference in *Trees* even of the ſame *growth* and *bed*, which I judge to proceed from the variety and quality of the *Seed*: This, for *inſtance*, is evidently ſeen in the heart, *procerity* and ſtature of *Timber*; and therefore chuſe not your *Seeds* always from the moſt *Fruitful-trees*, which are commonly the moſt *Aged*, and decayed; but from ſuch as are found moſt *ſolid* and *fair*: Nor, for this reaſon, covet the largeſt *Acorns*, *&c.* (but as *Huſband-men* do their *Wheat*) the moſt *weighty*, *clean* and *bright*: This Obſervation we deduce from *Fruit-trees*, which we ſeldom find to bear ſo kindly, and plentifully, from a *ſound* ſtock, *ſmooth* Rind, and *firm* Wood, as from a *rough*, *lax*, and *untoward* Tree, which is rather prone to ſpend it ſelf in *Fruit*, the ultimate effort, and final endeavour of its moſt delicate *Sap*, then in ſolid and cloſe *ſubſtance* to encreaſe the *Timber*. And this ſhall ſuffice, though ſome haply might here recommend to us a more accurate *Microſcopical* examen, to interpret their moſt ſecret *Schematiſmes*, which were an over *nicity* for theſe great *Plantations*.

3. As concerning the *medicating*, and *inſuccation* of *Seeds*, or enforcing the Earth by rich and generous *Compoſts*, *&c.* for Trees of theſe kinds; I am no great favourer of it; not only, becauſe the *charge* would much diſcourage the *Work*; but for that we find it unneceſſary, and for moſt of our *Foreſt-trees*, noxious; ſince even where the Ground is too fertile, they thrive not ſo well; and if a *Mould* be not proper for *one* ſort it may be fit for *another*: Yet I would not (by this) hinder any from the trial, what advance ſuch *Experiments* will produce: In the mean time, for the ſimple *Imbibition* of ſome *Seeds* and *Kernels*, when they prove extraordinary dry, and as the Seaſon may fall out, it might not be amiſs to *macerate* them in *Milk*, or *Water* only, a little *impregnated* with *Cow-dung*, *&c.* during the ſpace of twenty four hours, to give them a *ſpirit* to ſprout, and *chet* the ſooner; eſpecially, if you have been retarded in your *ſowing* without our former preparation.

4. Being thus provided with *Seeds* of all kinds, I would adviſe to raiſe *Woods* by ſowing them *apart*, in ſeveral places deſtin'd for their growth, where the *Mould* being prepar'd (as I ſhall ſhew hereafter) and ſo qualified (if election may be made) as beſt to ſuit with the nature of the *Species*, they may be ſown *promiſcuouſly*, which is the moſt natural and *Rural*; or in ſtraight and even lines, for *Hedge-rows*, *Avenues*, and *Walks*, which is the more *Ornamental*: But becauſe ſome may chuſe rather to draw them out of *Nurſeries*; that the *Culture* is not much different, nor the hinderance conſiderable (provided they be early, and carefully Removed)

moved) I will finiſh what I have to ſay concerning theſe *Trees* in the *Seminary*, and ſhew how they are *there* to be *Raiſed*, *Tranſplanted*, and *Govern'd* till they can ſhift for themſelves.

CHAP. II.

Of the Seminary.

Seminary.

1. *QVi Vineam, vel Arbuſtum conſtituere volet, Seminaria priùs facere debebit*, was the precept of *Columella*, *l.* 3. *c.* 5. ſpeaking of *Vineyards* and *Fruit-trees:* and, doubtleſs, we cannot purſue a better Courſe for the propagation of *Timber-trees:* For though it ſeem but a trivial deſign that one ſhould make a *Nurſery* of *Foreſters*; yet is it not to be imagin'd, without the experience of it, what prodigious *Numbers* a very ſmall *ſpot* of Ground well Cultivated, and deſtin'd for this purpoſe would be able to *furniſh* towards the ſending forth of yearly *Colonies* into all the naked quarters of a *Lordſhip*, or *Demeaſnes*; being with a pleaſant *Induſtry* liberally diſtributed amongſt the *Tenants*, and diſpos'd of about the *Hedge-rows*, and other *Waſte*, and uncultivated places, for *Timber*, *Shelter*, *Fuel*, and *Ornament*, to an incredible Advantage. This being a cheap, and laudable Work, of ſo much *pleaſure* in the execution, and ſo certain *profit* in the event; to be but *once* well done (for, as I affirm'd, a very ſmall *Nurſery* will in a few Years people a vaſt extent of Ground) hath made me ſometimes in admiration at the univerſal negligence.

2. Having therefore made choice of ſome fit place of *Ground*, well *Fenced*, reſpecting the *South-eaſt*, rather then the full *South*, and well protected from the *North* and *Weſt*; let it be *Broken up* the *Winter* before you ſow, to mellow it, eſpecially if it be a *Clay*, and then the *furrow* would be made deeper; or ſo, at leaſt, as you would prepare it for *Wheat:* Or you may *Trench* it with the *Spade*, by which means it will the eaſier be cleanſed of whatſoever may obſtruct the putting forth, and inſinuating of the tender Roots: Then having given it a ſecond *ſtirring*, immediately before you ſow, caſt, and diſpoſe it into *Rills*, or ſmall narrow *Trenches* of four, or five inches deep, and in even lines, at two foot interval, for the more commodious *Runcation*, *Hawing*, and dreſſing the Trees: Into theſe *Furrows* (for a *Conſeminea Sylva*) throw your *Oak*, *Beech*, *Aſh*, *Nuts*, all the *Glandiferous* Seeds, *Maſt*, and *Key-bearing* kinds, ſo as they lye not too thick, and then cover them very well with a *Rake*, or fine-tooth'd *Harrow*, as they do for *Peaſe:* Or, to be more accurate, you may ſet them as they do *Beans* (eſpecially, the *Nuts* and *Acorns*) and that every *Species* by themſelves, which is the better way: This is to be done at the latter end of *October*, for the *Autumnal* ſowing; and in the lighter ground, about *February* for the *Vernal.*

3. Your *Plants* beginning now to peep ſhould be *earthed* up, and

and comforted a little; eſpecially, after breaking of the greater *Froſts*, and when the ſwelling mould is apt to ſpue them forth; but when they are about an *inch* above ground you may, in a *moiſt* ſeaſon, draw them up where they are too *thick*, and ſet them immediately in other lines, or *Beds* prepared for them; or you may plant them in double *foſſes*, where they may abide for good and all, and to remain till they are of a competent ſtature to be *Tranſplanted*; where they ſhould be ſet at ſuch *diſtances* as their ſeveral *kinds* require; but if you draw them only for the thinning of your *Seminary*, prick them into ſome empty *Beds* at one foot *interval*, leaving the reſt at two or three.

4. When your *Seedlings* have ſtood thus till *June*, beſtow a half digging upon them, and ſcatter a little *mungy*, half-rotten *Litter*, *Fearn*, *Bean-hame*, or old *Leaves* among them, to preſerve the *Roots* from ſcorching, and to entertain the moiſture; and then in *March* following (by which time it will be quite conſum'd and very mellow) you ſhall *chop* it all into the *earth*, and mingle it together: Continue this *proceſs* for two or three years ſucceſſively, and then (or before, if the ſtature of your young *Impes* invite) you may plant them forth, carefully taking up their *Roots*, and cutting the *Stem* within an *inch* of the ground (if the *kind*, of which hereafter, ſuffer the *knife*) ſet them where they are to continue: Some repeat this the ſecond *Year*, and after *March* (the *Moon* decreaſing) re-cut them at half a foot from the *ſurface*; and then meddle with them no more: but this (if the *proceſs* be not more ſevere then needs) muſt be done with a very ſharp *Inſtrument*, and with care, leſt you violate, and unſettle the *Root*; which is likewiſe to be practis'd upon all thoſe which you did not *Tranſplant*, unleſs you find them very thriving *Trees*; and then it ſhall ſuffice to *prune* off the *Branches*, and ſpare the *Tops*; for this does not only greatly eſtabliſh your *Plants*, by diverting the *Sap* to the *Roots*; but likewiſe frees them from the injury and concuſſions of the *Winds*, and makes them to produce handſome, ſtraight *ſhoots*, infinitely preferable to ſuch as are abandon'd to *Nature*, and *Accident*, without this diſcipline: By this means the *Oak* will become excellent *Timber*, ſhooting into ſtraight and ſingle *ſtems*: The *Cheſs-nut*, *Aſh*, *&c.* multiply into *Poles*, which you may reduce to *ſtandards* at pleaſure.

5. The Author of the Natural Hiſtory, *Pliny*, tells us it was a vulgar *Tradition*, in his time, that no *Tree* ſhould be Removed under two years old, or above three: *Cato* would have none *Tranſplanted* leſs then five fingers in *diametre*; but I have ſhew'd why we are not to attend ſo long, for ſuch as we raiſe of *Seedlings:* In the interim, if theſe directions appear too buſie, or *operoſe*, or that the *Plantation* you intend be very ample, a more compendious *Method* will be the confuſed ſowing of *Acorns*, *&c.* in *Furrows*, two foot aſunder, covered at three fingers depth, and ſo for three years cleanſed, and the firſt *Winter* cover'd with fearn, without any farther culture, unleſs you *Tranſplant* them; but, as I ſhewed before, in *Nurſeries* they would be cut an *inch* from the Ground, and

and then let ſtand till *March* the ſecond year, when it ſhall be ſufficient to *diſbranch* them to *one* only ſhoot; whether you ſuffer them to *ſtand*, or remove them elſewhere. But to make an *Eſſay* what Seed is moſt agreeable to the *Soil*, you may by the *thriving* of a promiſcuous *Semination* make a judgement of it, Tranſplanting thoſe which you find leaſt agreeing with the *place*; or elſe, by *Copſing* the *ſtarvling* in the places where they are new ſown, cauſe them ſometimes to overtake even their untouch'd *contemporaries*. But I now proceed to particulars.

CHAP. III.

Of the Oak.

Oak. 1. I Have ſometimes conſider'd it very ſeriouſly, what ſhould move *Pliny* to make a whole *Chapter* of *one* only *Line*, which is leſs then the *Argument* of moſt of the reſt in his huge *Volumn*: but the weightineſs of the *Matter* does worthily excuſe him, who is not wont to ſpare his *Words*, or his *Reader*. *Glandiferi maximè generis omnes, quibus honos apud Romanos perpetuus.* "*Maſt-bearing-trees were they principally which the* Romans "*held in chiefeſt reputation*, li. 6. cap. 3. And in the following where he treats of *Chaplets*, and the dignity of the *Civic Coronet*, it might be compos'd of the *Leaves* or *Branches* of any *Oak*, provided it were a *bearing* Tree, and had *Acorns* upon it. It is for the eſteem which theſe *wiſe*, and glorious *people* had of this *Tree* above all others, that I will firſt begin with the *Oak*.

2. The *Oak* is of *four* kinds; two of which are moſt common with us; the *Quercus urbana*, which grows more up-right, and being clean, and lighter is fitteſt for *Timber*: And the *Robur* or *Quercus Sylveſtris*, which is of an hard, black grain, bearing a ſmaller *Acorn*, and affecting to ſpread in *branches*, and to put forth his *Roots* more above ground; and therefore in the planting, to be allow'd a greater diſtance; *viz.* from *twenty five*, to *forty foot*; whereas the other ſhooting up more erect will be contented with *fifteen*: This *kind* is farther to be diſtinguiſh'd by his fullneſs of *leaves*, which *tarniſh*, and becoming yellow at the *fall*, do commonly clothe it all the *Winter*, the Roots growing very deep and ſtragling. The Author of *Britannia Baconica* ſpeaks of an *Oak*, in *Lanhadron* Park in *Cornwall*, which bears conſtantly leaves ſpeckl'd with White; and of another call'd the *Painted-oak*, which I only mention here, that the variety may be compar'd by ſome ingenious perſon thereabouts, as well as the truth of the fatal *præ-admonition* of *Oaks* bearing ſtrange leaves. It is in the mean time the propagation of this large ſpreading.

3. *Oak* which is eſpecially recommended for the excellency of the *Timber*, and that his *Majeſties* Foreſts were well and plenti-

fully

fully ſtor'd with them; becauſe they require room, and ſpace to amplifie and expand themſelves, and would therefore be planted at more remote diſtances, and free from all encumbrances: And this upon conſideration how *ſlowly* a full-grown *Oak* mounts upwards, and how *ſpeedily* they ſpread, and dilate themſelves to all *quarters*, by dreſſing and due culture; ſo as above *forty years* advance is to be gain'd by this only Induſtry: And, if thus his *Majeſties* Foreſts, and *Chaſes* were ſtor'd; *viz.* with this *ſpreading Tree* at handſome *Intervals*, by which *Grazing* might be improv'd for the feeding of *Deer* and *Cattel* under them, benignly viſited with the *gleams* of the *Sun*, and adorn'd with the diſtant *Landskips* appearing through the glades, and frequent Vallies

Cærula diſtinguens inter plaga currere poſſet
Per tumulos, & convalles, campoſque profuſa:
Ut nuuc eſſe vides vario diſtincta lepôre
Omnia, quæ pomis interſita dulcibus ornant
Arbuſtiſque tenent felicibus obſita circum.

As the *Poet* incomparably deſcribes his *Olive-groves*,

——————betwixt
Whoſe rows the azure *Skie* is ſeen immix'd,
With *Hillocks*, Vales, and *Fields*, as now you ſee
Diſtinguiſh'd with a ſweet variety;
Such places which wild *Apple-trees* throughout
Adorn, and happy *ſhrubs* grow all about.
Lucret. lib. 5.

(For ſo we might alſo ſprinkle *Fruit-trees* amongſt them (of which hereafter) for *Cider* and many ſingular uſes) we ſhould find ſuch goodly *Plantations* the boaſt of our *Rangers*, and *Foreſts* infinitely preferrable to any thing we have yet beheld, *rude*, and *neglected* as they are: I ſay, when his *Majeſty* ſhall proceed (as he hath *deſign'd*) to animate this laudable pride into faſhion, *Foreſts* and *Woods* (as well as *Fields* and *Incloſures*) will preſent us with another face then now they do. And here I cannot but applaud the worthy Induſtry of old Sir *Harbotle Grimſtone*, who (I am told) from a very ſmall *Nurſery* of *Acorns* which he ſow'd in the neglected corners of his ground, did draw forth ſuch numbers of *Oaks* of competent growth; as being planted about his *Fields* in even, and uniform rows, about one hundred foot from the *Hedges*; buſh'd, and well water'd till they had ſufficiently fix'd themſelves, did wonderfully improve both the beauty, and the value of his *Demeaſnes*. But I proceed.

4. Both theſe *kinds* would be taken up very young, and *Tranſplanted* about *October*; and though they will grow tolerably in moſt grounds; yet do they generally affect the *ſound*, *black*, *deep* and *faſt* mould, rather warm then over wet and cold, and a little *riſing*; for this produces the firmeſt *Timber*; and ſo our former Naturaliſt

——*in montem ſuccedere ſylvas*
Cogebant.
Lucret.

though my L. *Bacon* prefer that which grows in the *moiſter* grounds for *Ship-timber*, as the moſt *tough*, and leſs ſubject to *rift:* but let us hear *Pliny*. This is a general Rule, *ſaith he*; "What Trees ſoever they be which grow tolerably either on "*Hills*, or *Vallies*, ariſe to greater ſtature, and ſpread more amply "in the *lower ground:* But the *Timber* is far better, and of a finer "*grain*, which grows upon the *Mountains*; excepting only *Apple*, "and *Pear-trees*. And in the 39. *cap. lib.* 16. The *Timber* of thoſe "Trees which grow in *moiſt* and *ſhady* places is not ſo good as "that which comes from a more expos'd ſituation, nor is it ſo cloſe, "ſubſtantial and durable; upon which he much prefers the *Tim-*"*ber* growing in *Tuſcany*, before that towards the *Venetian* ſide, "and upper part of the *Gulph:* And that *Timber* ſo growing was in greateſt eſteem long before *Pliny*, we have the *ſpear* of *Agamemnon*

——— ἔχων ἀνεμοτρεφὲς ἔγχος. Ιλ λ. from a Tree ſo expos'd; and *Dydimus* gives the reaſon. Τὰ γὰρ ἐν ἀνέμῳ (ſays he) πλείον γυμναζόμενα δένδρα, σεσεά, &c. For that being continually *weather-beaten* they become hardier and tougher.

5. But to diſcourage none, *Oaks* proſper exceedingly even in gravel, and moiſt *Clays*, which moſt other Trees abhor; yea, even the coldeſt *clay* grounds that will hardly graze: I have read, that there grow *Oaks* (ſome of which have contain'd ten loads apiece) out of the very Walls of *Silceſter* in *Hantſhire*, which ſeem to ſtrike root in the very *Stones*. It is indeed obſerv'd, that *Oaks* which grow in rough, *ſtony* grounds, and obſtinat *clays*, are long before they come to any conſiderable ſtature; for ſuch places, and all ſort of *Clay*, is held but a *ſtep-mother* to *Trees*; but in time they afford the moſt excellent *Timber*, having ſtood long, and got good *rooting:* The ſame may we affirm of the lighteſt *ſands*, which produces a ſmoother-grain'd *Timber*, of all other the moſt uſeful for the *Joyner*. What improvement the *ſtirring* of the ground about the roots of *Oaks* is to the *Trees* I have already hinted; and yet in *Copſes* where they ſtand *warm*, and ſo thickn'd with the *under-wood*, as this culture cannot be practis'd, they prove in time to be goodly Trees.

6. That the Tranſplanting of young *Oaks* gains them *ten* years *Advance* ſome happy perſons have affirmed: from this belief, I have deſir'd to be excuſed, and produc'd my Reaſons for it: Nor leſs are they *miſtaken*, who adviſe us to plant *Oaks* of a great *bigneſs*, which hardly make any conſiderable *progreſs* in an *Age*: Yet if any be deſirous to make *trial* of it, let their *Stems* be of the ſmootheſt, and tendereſt *Bark*; for that is ever an indication of *youth*, as well as the paucity of their *Circles*, which in diſbranching, and cutting the head off, at *five* or *ſix* foot height (a thing, by the way, which the *French* uſually ſpare when they *Tranſplant* this *Tree*) may

may (before you ſtir their *Roots*) ſerve for the more certain *Guide*; and then plant them immediately, with as much Earth as will adhere to them, in the place deſtin'd for their *ſtation*; abating only the *tap-roots*, which is that down-right, and ſtubby part of the *Roots* (which all *Trees* rais'd of *Seeds* do univerſally produce) and quickning ſome of the reſt with a ſharp *knife* (but ſparing the *Fibrous*, which are the main *Suckers* and *Mouths* of all *Trees*) ſpread them in the *foſs*, or *pit* which hath been prepar'd to receive them. I ſay in the *foſs*, unleſs you will rather *trench* the whole *Field*, which is incomparably the beſt; and infinitely to be preferr'd before narrow *pits* and *holes* (as the manner is) in caſe you plant any number conſiderable, the Earth being hereby made *looſe*, *eaſier* and *penetrable* for the *Roots*; about which you are to caſt that *Mould* which (in opening of the *Trench*) you took from the *Surface*, and purpoſely laid apart; becauſe it is ſweet, mellow, and better *impregnated:* But in this *Work*, be circumſpect never to *inter* your *Stem* deeper then you found it ſtanding; for profound *buryings* very frequently deſtroys a *Tree*; though an *Errour* ſeldom obſerved: If therefore the *Roots* be ſufficiently cover'd to keep the *Body* ſteady and erect, it is enough; and the not minding of this trifling *Circumſtance* does very much deceive our ordinary *Wood-men:* For moſt *Roots* covet the *Air* (though that of the *Quercus urbana* leaſt of any:

—— quòd quantum vertice ad auras
Æthereas, tantum radice ad tartara tendit)

And the perfection of *that* does almoſt as much concern the proſperity of a *Tree*, as of *Man* himſelf; ſince *Homo* is but *Arbor inverſa*; which prompts me to this *curious*, but important *Advertiſement*; That the *Poſition* be likewiſe ſeduloufly obſerved.

7. For, the *Southern* parts being more *dilated*, and the *pores* expos'd (as evidently appears in their *Horizontal Sections*) by the conſtant *Excentricity* of their *Hyperbolical Circles*; being now on the *ſudden*, and at ſuch a ſeaſon converted to the *North*, does *ſterve*, and deſtroy more *Trees* (how careful ſoever men have been in ordering the *Roots*, and preparing the *Ground*) then any other *Accident* whatſoever (neglect of *ſtaking*, and *defending* from *Cattle* excepted) the importance whereof cauſed the beſt of *Poets*, and moſt experienc'd in this *Argument*, giving advice concerning this *Article*, to add

Quinetiam Cœli regionem in cortice ſignant,
Ut quo quæque modo ſteterit, quâ parte calores
Auſtrinos tulerit, quæ terga obverterit axi
Reſtituant: Adeo in teneris conſueſcere multum eſt.

Geor. *li.* 1.

Which *Monition*, though *Pliny*, and ſome *others* think good to neglect, or eſteem *Indifferent*; I can confirm from frequent loſſes of my own, and by particular *trials*; having ſometimes *Tranſ-*

planted great trees at *Mid-ſomer* with ſucceſs (the *Earth* adhering to the *Roots*) and miſcarried in others where this *Circumſtance* only was omitted.

To obſerve therefore the *Coaſt*, and ſide of the ſtock, (eſpecially of *Fruit-trees*) is not ſuch a trifle as by ſome pretended: For if the *Air* be as much the *Mother* or *Nurſe*, as *Water* and *Earth*, (as more then probable it is) ſuch bloſſoming Plants as court the motion of the *Meridian Sun*, do as 'twere evidently point out the advantage they receive by their *poſition:* And the frequent *moſſineſs* of moſt *Trees* on the oppoſite ſide does ſufficiently note the unkindneſs of that *Aſpect*; and which is moſt evident in the *bark* of *Oaks* white and ſmooth; The Trees growing more kindly on the *South* ſide of an *Hill*, then thoſe which are expos'd to the *North*, with an hard, dark, rougher, and more moſſie *Integument*. I have ſeen (writes a worthy *Friend* to me on this occaſion) whole *Hedge-rows* of *Apples* and *Pears* that quite periſh'd after *that* ſhelter was remov'd: The good *Husbands* expected the contrary, and that the *Fruit* ſhould improve, as freed from the predations of the Hedge; but uſe and cuſtom made that ſhelter neceſſary; and therefore (ſaith he) a *ſtock* for a time is the weaker, taken out of a *Thicket*, if it be not well protected from all ſudden and fierce invaſions either of crude *Air* or *Winds:* Nor let any be deterr'd, if being to remove many *Trees*, he ſhall eſteem it too conſumptive of time; for with a *Bruſh* dipped in any *white* colour, or *Oaker*, a thouſand may be marked as they ſtand, in a moment; and that once done, the difficulty is over. I have been the larger upon theſe two *Remarks*, becauſe I find them ſo *material*, and yet ſo much neglected.

8. There are other *Rules* concerning the *ſituation* of *Trees*; the former *Author* commending the *North-eaſt-wind* both for the flouriſhing of the *Tree*, and advantage of the *Timber*; but to my obſervation, in our *Climates*, where thoſe ſharp *winds* do rather *flanker* then blow fully oppoſite upon our *Plantations*, they thrive beſt; and there are as well other *Circumſtances* to be conſidered, as they reſpect *Rivers* and *Marſhes* obnoxious to unwholſom and poyſonous *Fogs*; *Hills*, and *Seas*, which expoſe them to the weather; and thoſe *ſylviſragi venti*, our cruel, and tedious *Weſtern winds*; all which I leave to obſervation; becauſe theſe *accidents* do ſo univerſally govern, that it is not eaſie to determine farther then that the *Timber* is commonly better qualified which hath endur'd the *colder* Aſpects without theſe prejudices: And hence it is, that *Seneca* obſerves *Woods* moſt expos'd to the *Winds* to be the moſt *ſtrong* and *ſolid*, and that therefore *Chiron* made *Achilles*'s Spear of a *Mountain-tree*; and of *thoſe* the *beſt* which grow thin, not much ſhelter'd from the *North*. Again, *Theophraſtus* ſeems to have ſpecial regard to *places*; exemplifying in many of *Greece*, which exceeded others for good *Timber*, as doubtleſs do our *Oaks* in the *Foreſt* of *Dean* all others of *England:* and much certainly there may reaſonably be attributed to theſe advantages for the growth of *Timber*, and of almoſt all other *Trees*, as we daily ſee by their

general

general improſperity where the ground is a *hot gravel*, and a *looſe earth*: An *Oak* or *Elme* in ſuch a place ſhall not in an *hundred years* overtake one of *fifty* planted in its *proper* ſoil; though next to this, and (haply) before it, I prefer the good *Air*: But thus have they ſuch vaſt *Junipers* in *Spain*; and the *Aſhes* in ſome parts of the *Levant* (as of old neer *Troy*) ſo excellent, as it was after miſtaken for *Cedar*, ſo great was the difference; as now the *Cantabrian* or *Spaniſh* exceeds any we have elſe in all *Europe*.

9. But before we take leave of this *Paragraph*, concerning the *Tranſplanting* of great *Trees*, and to ſhew what is poſſible to be *effected* in this kind, with coſt, and induſtry; *Count Maurice* (the late *Governour* of *Braſil* for the *Hollanders*) planted a *Grove* neer his delicious *Paradiſe* of *Friburge*, containing ſix hundred *Coco-trees* of *eighty* years growth, and *fifty* foot high to the neereſt bough: theſe he wafted upon *Floats*, and *Engines*, four long miles, and planted them ſo luckily, that they bare abundantly the very firſt year; as *Gaſpar Barlæus* hath related in his elegant *Deſcription* of that *Princes* expedition: Nor hath this only ſucceeded in the *Indies* alone; *Monſieur de Fiat* (one of the *Marſhals* of *France*) hath with huge *Oaks* done the like at *de Fiat*: ſhall I yet bring you neerer home? My Lord *Hopton* planted *Oaks* as big as twelve *Oxen* could draw, to ſupply ſome defect in an *Avenue* to one of his houſes in *Devonſhire*; as the Right Honourable Sir *Charles Barclay*, *Treaſurer* of His *Majeſties Houſhold*, aſſur'd me; who had himſelf likewiſe practis'd the *Removing* of great *Oaks* by a particular addreſs extreamly ingenious, and worthy the communication.

10. Chuſe a *Tree* as big as your *thigh*, remove the earth from about him; cut through all the *collateral* Roots, till with a competent ſtrength you can enforce him down upon one ſide, ſo as to come with your *Axe* at the *Tap-root*; cut that off, redreſs your *Tree*, and ſo let it ſtand cover'd about with the *mould* you looſen'd from it, till the next year, or longer if you think good; then take it up at a fit ſeaſon; it will likely have drawn new tender *Roots* apt to take, and ſufficient for the *Tree*, whereſoever you ſhall tranſplant him: *Pliny* notes it as a common thing, to re-eſtabliſh huge *Trees* which have been blown down, part of their Roots torn up, and the body proſtrate; and, in particular, of a *Fir*, that when it was to be *tranſplanted* had a *tap-root* which went no leſs then *eight* cubits *perpendicular*; and to theſe I could ſuperadd, but I proceed. To facilitate the *Removal* of ſuch monſtrous *Trees*, for the *Adornment* of ſome particular *place*, or the rarity of the *Plant*, there is this *expedient*. A little before the hardeſt *Froſts* ſurprize you, make a ſquare *Trench* about your *Tree*, at ſuch diſtance from the *Stem* as you judge ſufficient for the *Root*; dig this of competent depth, ſo as almoſt quite to undermine it; by placing *blocks*, and *quarters* of wood, to ſuſtain the *Earth*; this done, caſt in as much *Water* as may fill the *Trench*, or at leaſt ſufficiently wet it, unleſs the ground were very moiſt before. Thus let it ſtand, till ſome very hard *Froſt* do bind it firmly to the

Roots,

Roots, and then convey it to the *pit* prepar'd for its new ſtation; but in caſe the mould about it be ſo *ponderous* as not to be remov'd by an ordinary force; you may then raiſe it with a *Crane* or *Pully* hanging between a *Triangle*, which is made of three ſtrong and tall *Limbs* united at the top, where a *Pully* is faſtned, as the *Cables* are to be under the quarters which bear the earth about the *Roots*: For by this means you may weigh up, and place the whole weighty *Clod* upon a *Trundle* to be convey'd, and *Replanted* where you pleaſe, being let down perpendicularly into the place by the help of the foreſaid *Engine*. And by this *addreſs* you may *Tranſplant* Trees of a wonderful *ſtature*, without the leaſt diſorder; and many times without *topping*, or diminution of the *head*, which is of great importance where this is practis'd to ſupply a *Defect*, or remove a *Curioſity*.

11. Some adviſe, that in planting of *Oaks*, *&c.* *four*, or *five* be ſuffer'd to ſtand very neer to one another, and then to leave the moſt *proſperous*, when they find the reſt to diſturb his growth; but I conceive it were better to plant them at ſuch *diſtances*, as they may leaſt incommode one another: For *Timber-trees*, I would have none neerer then *forty* foot where they ſtand *cloſeſt*; eſpecially of the ſpreading kind.

12. Laſtly, Trees of ordinary ſtature *Tranſplanted* (being firſt well *water'd*) muſt be ſufficiently *ſtaked*, and *Buſh'd* about with *thorns*, or with ſome thing better, to protect them from the concuſſions of the *Winds*, and from the caſual *rubbing*, and poyſonous brutting of *Cattle* and *Sheep*, the *oylineſs* of whoſe *Wooll* is alſo very noxious to them; till being well *grown*, and *fixed* (which by *ſeven* years will be to ſome competent degree) they ſhall be able to withſtand all accidental *invaſions*, but the *Axe*; for I am now come to their *Pruning* and *Cutting*, in which work the *Seaſons* are of main importance.

13. Therefore, if you would propagate *Trees* for *Timber*, cut not off their *heads* at all, nor be too buſie with lopping: but if you deſire *Shade*, and *Fuel*, or bearing of *Maſt* alone, lop off their Tops, *ſear*, and unthriving *Branches* only; If you intend an out-right *felling*, expect till *November*; for this *præmature* cutting down of *Trees* before the *Sap* is perfectly at *reſt* will be to your exceeding prejudice, by reaſon of the *Worm*, which will certainly breed in the *Timber* which is felled before that period: But in caſe you cut only for the *Chimney*, you need not be ſo punctual as to the time; yet for the benefit of what you let *ſtand* obſerve the *Moons* increaſe. The *Reaſon* of theſe *differences* is; becauſe *this* is the beſt ſeaſon for the *growth* of the *Tree* which you do *not* fell, the other for the *durableneſs* of the *Timber* which you *do*: Now that which is to be *burnt* is not ſo material for *laſting*, as the *growth* of the Tree is conſiderable for the *Timber*.

14. The very *ſtumps* of *Oak*, eſpecially that part which is dry and above ground being well *grubb'd*, is many times worth the pains and charge, for ſundry rare, and *hard* works; and where *Timber* is dear: but this is to be practis'd only where you

deſign

deſign a final *extirpation*; for ſome have drawn *ſuckers* even from an old *ſtub-root*; but they certainly periſh by the *Moſs* which invades them, and are very ſubject to grow rotten. *Pliny* ſpeaks of one *Root* which took up an entire *Acre* of Ground; if ſo, his *Argument* may hold good for their growth after the *Tree* is come to its period.

15. There is not in *nature* a thing more obnoxious to *deceit*, then the buying of Trees *ſtanding*, upon the reputation of their *Appearance* to the *eye*, unleſs the *Chapman* be extraordinarily judicious; ſo various are their *hidden*, and conceal'd *Infirmities*, till they be *fell'd*, and *ſawn* out: ſo as if to any thing *applicable*, certainly there is nothing which does more perfectly confirm it then the moſt flouriſhing *out-ſide* of Trees, *Fronti nulla fides*. A *Timber-tree* is a *Merchant Adventurer*, you ſhall never know what he is *worth*, till he be *dead*.

16. *Oaks* are in ſome places (where the ſoil is *ſpecially* qualified) ready to be cut for *Cops* in *fourteen* years and ſooner; I compute from the firſt *ſemination*; though it be told as an inſtance of high encouragement (and as indeed it merits) that a *Lady* in *Northamptonſhire* ſowed *Acorns*, and liv'd to cut the *Trees* produc'd from them, *twice* in *two* and *twenty years*; and *both* as well grown as moſt are in *ſixteen* or *eighteen*. This yet is certain, that *Acorns* ſet in *Hedge-rows* have in thirty years born a *ſtem* of a foot *diametre*. Generally, *Copps-wood* ſhould be cut *cloſe*, and at ſuch *Intervals* as the growth requires; which being ſeldom conſtant, depends much on the *places*, and the *kinds*, the *mould* and the *air*, and for which there are extant particular *Statutes* to direct us, of all which more at large hereafter. Oak for *Tan-bark* may be fell'd from *April* to the laſt of *June*, by a *Statute* in the 1 *Jacobi*.

17. To enumerate now the incomparable *Uſes* of this *Wood*, were needleſs: But ſo precious was the eſteem of it, that of *old* there was an expreſs *Law* amongſt the *Twelve Tables* concerning the very gathering of the *Acorns* though they ſhould be found fallen into another mans Ground: The *Land* and the *Sea* do ſufficiently ſpeak for the improvement of this excellent material; *Houſes*, and *Ships*, *Cities* and *Navies* are built with it; and there is a *kind* of it ſo *tough*, and extreamly compact, that our ſharpeſt *Tools* will hardly enter it, as ſcarcely the very *Fire* it ſelf, in which it conſumes but ſlowly, as ſeeming to partake of a *ferruginous*, and *metallin* ſhining nature proper for ſundry robuſt Uſes. That which is *twin'd*, and a little *wreathed* (eaſily to be diſcern'd by the *texture* of the *Bark*) is beſt to ſupport *Burthens*, for *Poſts*, *Columns*, *Summers*, *&c.* for all which our *Engliſh Oak* is infinitely preferrable to the *French*, which is nothing ſo *uſeful*, nor comparably ſo *ſtrong*; inſomuch as I have frequently admir'd at the ſudden failing of moſt goodly *Timber* to the *Eye*, which being imploy'd to theſe *Uſes* does many times moſt dangerouſly flie in ſunder, as wanting that native *ſpring*, and *toughneſs*, which our *Engliſh* Oak is indu'd withall. For *Shingles*, *Pales*, *Lathes*, *Coopers* ware, *Clap-board*, *&c.* the ſmalleſt and ſtraighteſt is beſt; diſcover'd like-

likewiſe by the upright *tenor* of the *Bark*, as being the moſt proper for *cleaving*: The *knottieſt* for *Water-works*, *Piles* and the like; becauſe 'twill drive beſt, and laſt longeſt. Were planting of theſe *Woods* more in uſe, we ſhould baniſh our *hoops* of *Haſel*, *&c.* for thoſe of good *Oak*, which being made of the younger *ſhoots*, are exceeding tough and ſtrong: *One* of them being of *Ground-Oak* will out-laſt *ſix* of the beſt *Aſh*. The ſmaller trunchions, and *ſpray*, make *Billet*, *Bavine* and *Coals*; and the very *Bark* is of price with the *Tanner* and *Dier*, to whom the very *Saw-duſt* is of uſe, as are the *Aſhes* and *Lee* to cure the *roapiſhneſs* of *Wine*. The *Ground-Oak* while young is us'd for *Poles*, *Cudgels* and *Walking-ſtaffs*, not to forget the *Galls*, *Miſſletoe*, and many other uſeful *Excreſcencies*: *Pliny* affirms that the *Galls* do break out altogether in one *night* about the beginning of *June*, and arrive to their full growth in one *day*; this I recommend to the experience of ſome extraordinary vigilant *Wood-man*. What benefit the *Maſt* does univerſally yield for the fatting of *Hogs* and *Deer* I ſhall ſhew upon another occaſion, before the concluſion of this Diſcourſe; in the mean time, the very *Acorns* themſelves were heretofore the *Food* of *Men* (as well as other *Productions* of the earth) till their luxurious *Palats* were *debauched*; and even in the *Romans* time, the cuſtom was in *Spain* to make a *ſecond ſervice* of *Acorns* and *Maſt*, (as the *French* now do of *Marrons*, and *Cheſs-nuts*) which they likewiſe uſed to roſt under the *embers*. *Oaks* bear alſo a *knur*, full of a *Cottony* matter, of which they Antiently made *Wick* for their *Lamps* and *Candles*; and among the *Selectiora Remedia* of *Jo. Prævotius* there is mention of an Oyl *è querna glande* Chymically *extracted*, which he affirmes to be of the longeſt continuance, and leaſt conſumptive of any other whatſoever: for ſuch lights, *ita ut uncia ſingulis menſibus vix abſumatur continuo igne*. To conclude, M. *Blith* makes *Spars* and ſmall building *Timber* of *Oakes* of *eleven* years growth; this is indeed a prodigious Advance, but I ſuſpect the figure.

CHAP. IV.

Of the Elm.

Elm. 1. OF the *Elm* there are *four*, or *five* ſorts, and from the difference of the *Soil* and *Air* divers *ſpurious*: Two of theſe kinds are moſt worthy our culture, *viz.* the *Mountain Elm*, which is taken to be the *Oriptelea* of *Theophraſtus*; being of a leſs, jagged and ſmaller leaf; and the *Vernacula* or *French Elm*, whoſe leaves are thicker, and more florid, delighting in the lower, and moiſter grounds, where they will ſometimes riſe to above an hundred foot in height, and a prodigious growth, in leſs then an *Age*; my ſelf having ſeen *one* planted by the hand of a

Counteſs

Counteſs yet living, which is neer *twelve* foot in *compaſs*, and of an *height* proportionable; notwithſtanding the numerous *progeny* which grows under the ſhade of it, ſome whereof are at leaſt a foot in *Diameter*, that for want of being ſeaſonably *tranſplanted* muſt needs have hindered the procerity of their ample and indulgent *Mother*.

2. Both theſe *ſorts* are rais'd of *Appendices* or *Suckers* (as anon we ſhall deſcribe) but this *latter* comes well from the *Samera* or Seeds, which being *ripe* about the beginning of *March* will produce them; as we ſee abundantly in the *Gardens* of the *Thuylleries*, and that of *Luxembourg*, at *Paris*, where they uſually ſow themſelves, and come up very thick; and ſo do they in many places of our *Country*, though ſo ſeldom taken notice of, as that it is eſteem'd a *Fable* by the leſs obſervant and ignorant *Vulgar*. To raiſe them therefore of their *Seeds* (being well dry'd a day or two before) ſprinkle it in *Beds* prepar'd of good earth; ſifting ſome of the fineſt *mould* thinly over them, and watering them when need requires. Being riſen an *inch* above ground (refreſh'd, and preſerv'd from the ſcraping of *Birds* and *Poultry*) comfort the tender *ſeedlings* by a ſecond ſifting of more fine earth, to eſtabliſh them; thus keep them clean *weeded* for the firſt *two years*; or till being of fitting ſtature to *Remove*, you may *thin*, and *Tranſplant* them in the ſame manner as you were directed for young *Oaks*; only they ſhall not need above one *cutting* where they grow leſs regular and hopeful. But becauſe this is an *Experiment* of ſome *curioſity*, obnoxious to many caſualties, and that the producing them from the *Mother-roots* of greater Trees is very facile and expeditious (beſides the numbers which are to be found in the *Hedge-rows*, and *Woods*, of all plantable ſizes) I rather adviſe our *Foreſter* to furniſh himſelf from thoſe places.

3. The *Suckers* which I ſpeak of are produc'd in abundance from the *Roots*, whence being dextrouſly *ſeparated*, after the Earth has been well looſen'd, and planted about the end of *October*, they will grow very well: Nay, the *ſtubs* only, which are left in the ground after a *Felling* (being fenced *in* as far as the *Roots* extend) will furniſh you with plenty, which may be *Tranſplanted* from the *firſt* year or *two* ſucceſſively, by ſlipping them from the *Roots*, which will continually ſupply you for many years after that the body of the Mother *Tree* has been cut down: And from hence probably is ſprung that (I fear) miſtake of *Salmaſius* and others, where they write of the growing of their *Chips* (I ſuppoſe, having ſome of the bark on) ſcatter'd in hewing of their *Timber*; the *Errour* proceeding from this, that after an *Elm-tree* has been *Fell'd*, the numerous *Suckers* which ſhoot from the remainders of the *latent* Roots ſeem to be produced from this diſperſion of the *Chips*: Let this yet be more accurately examin'd; for I pronounce nothing *Magiſterially*.

4. But there is alſo another *Artifice* to produce them ſooner, which is this; *Bare* ſome of the *Maſter-roots* of a vigorous *Tree*, within a *foot* of the *Trunk*, or thereabouts, and with your *Axe*

make ſeveral *Chops*, putting a ſmall *ſtone* into every *cleft*, to hinder their cloſure, and give acceſs to the *wet*; then cover them with three or four *inch* thick of *Earth*: and thus they will ſend forth *Suckers* in abundance, which after two, or three *Years*, you may ſeparate, and plant in the *Ulmarium*, or place deſign'd for them; and which if it be in *plumps* (as they call them) within ten or twelve *foot* of each other, or in *Hedge-rows*, it will be the better: For the *Elm* is a Tree of *Conſort*, *Sociable*, and ſo affecting to grow in *Company*, that the very beſt which I have ever ſeen do almoſt *touch* one another: This alſo protects them from the *Winds*, and cauſes them to ſhoot of an extraordinary *height*; ſo as in little more then *forty* years they even arrive to a load of *Timber*; provided they be ſedulouſly and carefully cultivated, and the ſoil propitious. For an *Elm* does not thrive ſo well in the *Foreſt*, as where it may enjoy ſcope for the *Roots* to dilate and ſpread in the ſides, as in *Hedge-rows* and *Avenues*, where they have the *Air* likewiſe free.

5. Of all the Trees which grow in our *Woods*, there is none which does better ſuffer the *Tranſplantation* then the *Elm*; for you may remove a Tree of *twenty years growth* with undoubted ſucceſs: It is an *Experiment* I have made in a Tree almoſt as big more as my waſte; but then you muſt totally *diſbranch* him, leaving only the *Summit* intire; and being careful to take him up with as much *Earth* as you can, refreſh him with abundance of *water*. This is an excellent and expeditious way for great *Perſons* to plant the *Acceſſes* of their *Houſes* with; for being diſpos'd at *ſixteen*, or *eighteen* foot *Interval*, they will in a few years bear goodly *heads*, and thrive to admiration. Some that are very cautious *emplaſter* the wounded head of ſuch over-grown *Elms* with a mixture of *clay*, and *horſe-dung*, bound about them with a *wiſp* of *Hay* or fine *Moſs*, and I do not reprove it. But for more ordinary plantations, younger Trees, which have their *bark* ſmooth and tender, about the ſcantling of your *leg*, and their *heads* trimm'd at *five* or *ſix* foot *height*, are to be preferr'd before all other. *Cato* would have none of theſe ſorts of *Trees* to be removed till they are *five* or *ſix* fingers in *diameter*; others think they cannot take them too *young*; but experience (the beſt *Miſtriß*) tells *us*, that you can hardly plant an *Elm* too *big*. There are who pare away the *Root* within two fingers of the *ſtem*, and quite cut off the *Head*; but I cannot commend this extream ſeverity, no more then I do the ſtrewing of *Oats* in the pit; which *fermenting* with the moiſture, and frequent *waterings*, is believed much to *accelerate* the putting forth of the *Roots*; not conſidering, that for want of *air* they corrupt, and grow *muſty*, which more frequently ſuffocates the *Roots*, and endangers the whole *Tree*.

6. The *Elm* delights in a *ſound*, *ſweet* and *fertile* Land, ſomething more inclin'd to moiſture, and where good *Paſture* is produced; though it will alſo proſper in the gravelly, provided there be a competent depth of *mould*, and be refreſh'd with ſprings: in defect of which, being planted on the very ſurface of the ground (the

ſwarth

ſwarth par'd firſt away, and the earth ſtirred a foot deep or more) they will undoubtedly ſucceed; but in this *Trial*, let the *Roots* be handſomly ſpread, and covered a *foot*, or more in height, and above all, firmly *ſtaked*. This is practicable alſo for other *Trees*, where the *Soil* is over moiſt, or unkind: For as the *Elm* does not thrive in too *dry*, *ſandy* or *hot* grounds, no more will it abide the *cold* and *ſpungy*; but in places that are competently fertile, or a little elevated from theſe annoyances; as we ſee in the *Mounds*, and caſtings up of ditches, upon whoſe banks the *Femal* ſort does more naturally delight.

7. The *Elm* is by reaſon of its aſpiring, and *tapering* growth (unleſs it be *topp'd* to enlarge the *branches*, and make them ſpread low) the leaſt offenſive to *Corn*, and *Paſture-grounds*, to both which, and the *Cattel*, they afford a benign *ſhade*, *defence*, and agreeable *Ornament*.

8. It would be planted as *ſhallow* as might be; for, as we noted, deep *interring* of *Roots* is amongſt the *Catholick* Miſtakes; and of *this*, the *greateſt* to which *Trees* are obnoxious. Let new planted *Elms* be kept *moiſt* by frequent refreſhings upon ſome half-rotten *Fern*, or *Litter* laid about the foot of the *ſtem*; the earth a little ſtirred and depreſſed for the better reception, and retention of the *water*.

9. Laſtly, your Plantation muſt above all things be carefully preſerv'd from *Cattel*, and the concuſſions of impetuous *Winds*, till they are out of reach of the *one*, and ſturdy enough to encounter the *other*.

10. When you lop the *Elm* (which may be about *January* for the fire, and more frequently, if you deſire to have them *tall*; or that you would form them into *Hedges* (for ſo they may be kept *plaſhed*, and thickned to the higheſt twig; affording both a magnificent, and auguſt *Defence* againſt the *Winds* and *Sun*) I ſay, when you thus *trim* them, be careful to indulge the *Tops*; for they protect the body of your *Trees* from the *wet*, which always invades thoſe parts firſt, and will in time *periſh* them to the very heart; ſo as *Elms* beginning thus to decay, are not long proſperous. Sir *Hugh Plat* relates (as from an expert *Carpenter*) that the boughs and branches of an *Elm* ſhould be left a *foot* long next the *trunk*, when they are *lop'd*; but this is to my certain obſervation a very great *miſtake* either in the *Relator*, or *Author*: for I have noted many *Elms* ſo diſbranch'd, that the remaining *ſtubs* grew immediately *hollow*, and were as ſo many *Conduits*, or *Pipes*, to hold, and convey the *Rain* to the very body, and *heart* of the Tree.

11. There is a *Cloyſter* of the right *French Elm* in the little *Garden* neer to her *Majeſties* the *Q. Mothers* Chappel at *Somerſet-houſe*, which were (I ſuppoſe) planted *there* by the induſtry of the F F. *Capuchines*, that will perfectly direct you to the incomparable uſe of this noble *Tree* for *ſhade* and *delight*, into whatever *Figure* you will accuſtom them. I have alſo heard of graffing *Elms* to a great improvement of their heads, and it would be try'd.

12. When you would *Fell* let the *Sap* be perfectly in repoſe; as 'tis commonly about *November* or *December*, after the *froſt* hath well nipp'd them: I have already alleadg'd my reaſon for it; and I am told, That both *Oak* and *Elm* ſo *cut*, the very *Saplings* (whereof *Rafters*, *Spars*,&c. are made) will continue as long as the very *heart* of the *Tree* without decay. In this *work* cut your *kerfs near* to the ground; but have a care that it ſuffer not in the *fall*, and be ruined with its own weight: This depends upon your *Wood-man*'s judgment in *disbranching*, and is a neceſſary caution to the Felling of all other *Timber-Trees*. If any begin to *doat*, pick out ſuch for the *Ax*, and rather truſt to its *Succeſſor*.

13. *Elm* is a *Timber* of moſt ſingular *Uſe*; eſpecially where it may lie continually *dry*, or *wet* in extreames; therefore proper for *Water-works*, *Mills*, *Pipes*, *Pumps*, *Ship-planks* beneath the *Water-line*; and ſome that has been found buried in *Boggs*, has *turn'd* like the moſt poliſh'd, and hardeſt *Ebony*, only diſcern'd by the *grain*: Alſo for *Wheel-wrights*, *Kerbs* of *Coppers*, *Featheridg* and *Weather-boards*, *Dreſſers* and ſundry other imployments. It makes alſo the ſecond ſort of *Charcoal*; and finally (which I muſt not omit) the uſe of the very *leaves* of this *Tree*, eſpecially of the *female*, is not to be deſpis'd; for being ſuffered to dry in the *Sun* upon the Branches, and the *ſpray* ſhrip'd off about the *decreaſe* in *Auguſt* (as alſo where the ſuckers and *ſtolones* are ſuper-numerary, and hinder the thriving of their *Nurſes*) they will prove a great relief to *Cattel* in *Winter*, when *hay* and *fodder* is dear; they will eat them even before *Oates*, and thrive exceedingly well with them; remember only to lay your *Boughs* up in ſome dry, and ſweet corner of your *Barn*: It was for this the *Poet* prais'd them, and the Epithete was advis'd,

——*fœcundæ frondibus Ulmi.* Georg. 2.

In ſome parts of *Hereford-ſhire* they gather them in *Sacks* for their *Swine*, and other *Cattel* according to this husbandry.

CHAP. V.

Of the Beech.

Beech. 1. THe *Beech*, [*Fagus*] numbred amongſt the *glandiferous* Trees, I rank here before the martial *Aſh*, becauſe it commonly grows to a greater ſtature. There are of theſe *Fagi* two, or three *kinds* with us; the *Mountain*, which is the whiteſt, and moſt ſought after by the *Turner*; and the *Campeſtral* or wild, which is of a blacker colour, and more durable. They are both to be rais'd from the *Maſt*, and govern'd like the *Oak*, of which amply; and that is abſolutely the beſt way of furniſhing a *Wood*: But they are likewiſe

likewiſe to be planted of young *ſeedlings* to be drawn out of the places where the fruitful *Trees* abound. In *Tranſplanting* them cut off only the boughs and bruiſed parts, two *Inches* from the *ſtem*, to within a *yard* of the *top*; but be very ſparing of the Root: *This* for ſuch as are of pretty *ſtature*. They make ſpreading *Trees*, and noble *Shades* with their well furniſh'd and gliſtering *leaves*, being ſet at forty foot diſtance; but they grow taller and more upright in the *Foreſts*, where I have beheld them at *eight* and *ten* foot, *ſhoot* into very long *poles*; but neither ſo apt for *Timber*, nor *Fuel:* In the Vallies (where they ſtand warm, and in *conſort*) they will grow to a ſtupendious *procerity*, though the ſoil be ſtony and very barren: Alſo upon the *declivities*, ſides and tops of high *Hills*, and *chalkie Mountains* eſpecially; for they will ſtrangely inſinuate their *Roots* into the bowels of thoſe ſeemingly impenetrable places, not much unlike the *Fir* it ſelf, which, with *this* ſo common *Tree*, the great *Cæſar* denies to be found in *Britanny*, *Materia cujuſque generis, ut in Gallia, præter Fagum & abietem*: but certainly from a grand miſtake.

2. The *Beech* ſerves for various *Uſes* of the *Houſe-wife*; with it the *Turner* makes *Diſhes, Trays, Bowls, Rimbs* for *Buckets*, and other Utenſils, *Trenchers, Dreſſer-boards, &c.* likewiſe for the *Wheeler, Joyner*, and *Upholſter* for *Sellyes, Chairs, Stools, Bed-ſteads, &c.* for the *Bellows-maker*, and *Husbandman* his *Shovel* and *Spade-graffs*; for *Fuel, Billet, Bavin* and *Coal* though one of the leaſt laſting: Not to omit even the very *Shavings* for the *fining* of *Wines*. Of old they made their *Vaſa Vindimiatoria* and *Corbes Meſſoriæ* (as we our pots for *Straw-berries*) with the *Rind* of this *Beech*; and that curiouſly wrought *Cup* which the *Shepherd* in the *Bucolicks* wagers with all, was engraven by *Alcimedon* upon the *Bark* of this Tree: You would not wonder to hear me deplore the ſo frequent uſe of this *Wood*, if you did conſider that the induſtry of *France* furniſhes that Country for all domeſtic *Utenſils* with excellent *Wall-nut*; a material infinitely preferrable to the beſt *Beech*; which is indeed good only for *ſhade* and for *Fire*; as being brittle, and exceedingly obnoxious to the *Worm:* But whil'ſt we thus condemn the *Timber*, we muſt not omit to praiſe the *Maſt*, which fats our *Swine* and *Deer*, and hath in ſome *Families* even ſupported men with bread: *Chios* indur'd a memorable *Siege* by the benefit of this *Maſt:* and in ſome parts of *France* they now grind the *Buck* in *Mills*; it affords a ſweet *Oyl* which the poor people eat moſt willingly: But there is yet another benefit which this *Tree* preſents us; that its very *leaves* which make a natural, and moſt agreeable *Canopy* all the Summer; being gather'd about the fall, and ſomewhat before they are much *froſt-bitten*, afford the beſt and eaſieſt *Mattreſſes* in the world to lay under our *quilts* inſtead of *ſtraw*; becauſe, beſides their tenderneſs and looſe lying together, they continue ſweet for ſeven or eight years long; before which time *ſtraw* becomes *muſty*, and hard; They are thus uſed by divers *perſons* of *Quality* in *Dauphine*, and in *Swizzerland* I have

ſome-

ſometimes lain on them to my great refreſhment: ſo as of this *Tree* it may properly be ſaid,

——*Sylva domus, cubilia frondes.* Juvenal.

Swine may be driven to *Maſt* about the end of *Auguſt*.

CHAP. VI.

Of the Aſh.

Aſh. 1. *Fraxinus* the *Aſh* is with us *Male* and *Female*, the one affecting the higher grounds:

——*Steriles ſaxoſis montibus orni.* Geor. 2.

The other the plains, of a *whiter* wood, and riſing many times to a prodigious ſtature; ſo as in forty years from the *Key*, an *Aſh* hath been ſold for thirty pounds *Sterling*: and I have been credibly inform'd, that one *perſon* hath planted ſo much of this one ſort of *Timber* in his life time as hath been valu'd worth *fifty thouſand pounds* to be bought. Theſe are pretty encouragements, for a ſmall, and pleaſant induſtry.

2. The *Keys* being gather'd when they begin to fall (which is about the end of *October*, and the enſuing Moneth) are to be ſow'd; but not altogether ſo deep as your former *Maſts*: Thus they do in *Spain*: A very narrow *Seminary* will be ſufficient to ſtore an whole *Country*: They will lye a full *year* in the ground before they appear; therefore you muſt carefully *Fence* them all that time and have patience: But if you would make a conſiderable *Wood* of them at once, *Dig* or *Plow* a parcel of ground, as you would prepare it for *Corn*, and with the *Corn* (or what other *Grain* you think fitteſt) ſow alſo good ſtore of *Keys*, ſome *Crabkernels*, *&c.* amongſt them: Take off your crop of *Corn*, or *Seed* in its *Seaſon*, and the next year following it will be cover'd with young *Aſhes*, which will be fit either to ſtand, or be *Tranſplanted* for divers years after; and theſe you will find to be far better then any you can gather out of the *Woods* (eſpecially *Suckers* which are worth nothing) being removed at one foot ſtature (the ſooner the better) provided you defend them well from *Cattel*: The reaſon of this haſty tranſplanting, is to prevent their obſtinate, and deep rooting; *tantus amor terræ*—— which makes them hard to be taken up when they grow older, and that being remov'd, they take no great hold till the ſecond year, after which they come away amain: Yet I have *planted* them of five and ſix inches *diametre*, which have thriven as well as the ſmaller wands.

Cut

Cut not his *Head* at all, nor (by any means) the fibrous part of the *Roots*, only, that down-right, or *Tap-root* (which gives our *Huſbandmen* ſo much trouble in drawing) is to be totally abated: But this work ought to be in the increaſe of *October*, or *November*, and not in the *Spring*. We are (as I told you) willing to ſpare his *head*; becauſe, being yet young, it is but of a *ſpongy* ſubſtance; but being once well fixed, you may cut him as cloſe to the earth as you pleaſe; it will cauſe him to ſhoot prodigiouſly; ſo as in a few years to be fit for *Pike-ſtaves*. In South *Spain* (where are the beſt) after the firſt dreſſing, they let them grow till they are ſo big, as being cleft into four parts, each part is ſufficient to make a *Pike-ſtaff*: I am told there is a *Flemiſh Aſh* planted by the *Dutchmen* in *Lincolnſhire*, which in ſix years grows to be worth *twenty ſhillings* the Tree; but I am not aſſur'd, whether it be the *Aſh*, or *Abeele*; either of them were, upon this account, a worthy encouragement. From theſe low Cuttings come our *Ground-aſhes*, ſo much ſought after for *Arbours*, *Eſpaliers*, and other *Pole*-Works: They will ſpring in abundance, and may be reduced to *one* for a *Standard-tree*, or for *Timber*, if you deſign it; for thus, *Hydra* like, a *Ground-cut-aſh*

Per damna, per cædes, ab ipſo
Ducit opes animúmq́; ferro. Hor.

3. It is by no means convenient to plant *Aſh* in *Plow-lands*; for the *Roots* will be obnoxious to the *Coulter*; and the *ſhade* of the Tree is malignant to *Corn* when the head and banches over-drip it; but in *Hedge-rows*, and *Plumps*, they will thrive exceedingly, where they may be diſpos'd at nine or ten foot diſtance, and ſometimes neerer: But in planting of a whole *Wood* of ſeveral kinds of *Trees* for *Timber*, every third *ſet* at leaſt would be an *Aſh*. The beſt *Aſh* delights in the beſt Land (which it will ſoon impoveriſh) yet grows in any; ſo it be not over-wet, and approaching to the *Marſhy*, unleſs it be firſt well drain'd: By the banks of ſweet and cryſtal *Rivers* and Streams I have obſerv'd them to thrive infinitely.

4. The uſe of *Aſh* is (next to that of the *Oak* it ſelf) one of the moſt univerſal: It ſerves the Souldier —— *& Fraxinus utilis haſtis*. Ovid. The *Carpenter*, *Wheel-wright*, *Cart-wright*, *Cooper*, *Turner* and *Thatcher*: Nothing like it for our Garden *Paliſad-hedges*, *Hop-yards*, *Poles* and *Spars*, *Handles*, *Stocks* for *Tools*, *Spade-trees*, *&c.* In ſum, the *Husband-man* cannot be without the *Aſh* for his *Carts*, *Ladders*, and other tackling: From the *Pike*, *Spear* and *Bow* (for of *Aſh* were they formerly made) to the *Plow*; in Peace and War it is a wood in higheſt requeſt: Laſtly, the *white* and rotten dottard part compoſes a *ground* for our Gallants *Sweet-powder*, and the *Truncheons* make the third ſort of the moſt durable *Coal*, and is (of all other) the ſweeteſt of our *Foreſt-fuelling*, and the fitteſt for *Ladies* Chambers: To conclude, the very *dead-leaves* afford (like thoſe of the *Elm*) relief to our *Cattel* in *Winter*;

Winter; but the ſhade of them is not to be endur'd, becauſe it produces a noxious *Inſect*; and for diſplaying themſelves ſo very *late*, and falling very *early*, not to be planted for *Umbrage*, or *Ornament*; eſpecially neer the *Garden*; ſince (beſides their predatitious *Roots*) the deciduous *leaves* deſcending with ſo long a *Stalk*, are drawn by cluſters into the *Worm-holes*, which foul the *Allies* with their falling *Keys*, and ſuddenly infect the ground.

CHAP. VII.

Of the Cheſs-nut.

Cheſs-nut. 1. THe next is the *Cheſs-nut*, [*Caſtanea*] of which *Pliny* reckons many kinds, eſpecially that about *Tarentum* and *Naples*; but we commend thoſe of *Portugal*. They are rais'd beſt by *ſowing*; previous to which, let the *Nuts* be firſt ſpread to *ſweat*, then cover them in *ſand*; a *Moneth* being paſt, plunge them in *Water*, reject the *Swimmers*; being dry'd for thirty days more, *ſand* them again, and then to the *water-ordeal* as before. Being thus treated till the beginning of *Spring*, ſet them as you would do *Beans*: *Pliny* will tell you they come not up, unleſs four or five be pil'd together in a hole; but that is falſe, if they be good, as you may preſume all thoſe to be which paſs this *examination*; nor will any of them fail: But being come up they thrive beſt *unremov'd*, making a great *ſtand* for at leaſt two years upon every *Tranſplanting*; yet if needs you muſt alter their *Station*, let it be done about *November*, and that into a light friable ground, or moiſt *Gravel*; however, they will grow even in *Clay*, *Sand*, and all *mixed* ſoils, upon expos'd and bleak places, as more patient of *cold* then heat.

2. If you deſire to ſet them in *Winter*, or *Autumn*, I counſel you to inter them within their *husks*, which being every way arm'd are a good protection againſt the *Mouſe*, and a providential integument: Some ſow them confuſedly in the *Furrow* like the *Acorn*, and govern them as the *Oak*; but then would the ground be broken up 'twixt *November* and *February*; and when they ſpring be cleanſed at two foot aſunder, after two years growth: Likewiſe may *Copſes* of *Cheſs-nuts* be wonderfully increaſed and thickn'd by *laying* the tender and young branches; but ſuch as ſpring from the *Nuts* and *Marrons* are beſt of all, and will thrive exceedingly, if being let ſtand without removing, the ground be ſtirr'd and looſen'd about their *Roots* for two or three of the firſt years, and the ſuperfluous wood pruned away: Thus will you have a *Copſe* ready for a *felling* within eight years, which (beſides many other uſes) will yield you incomparable *poles* for any work of the *Garden*, *Vineyard*, or *Hop-yard*, till the next *cutting*: And if the Tree like the ground, will in ten or twelve years

years grow to a kind of *Timber*, and bear plentiful fruit.

3. I have ſeen many *Cheſs-nut-trees* tranſplanted as big as my arm, their *heads* cut off at five and ſix foot height; but they came on at leiſure: In ſuch *Plantations*, and all others for *Avenues*, you may ſet them from thirty to ten foot diſtance, though they will grow much neerer, and ſhoot into poles, if (being tender) you cultivate them like the *Aſh*.

4. The *Cheſs-nut* being graffed in the *Wall-nut*, *Oak* or *Beech*, (I have been told) will come exceeding fair, and produce incomparable Fruit; for the *Wall-nut* it is probable; but I have not as yet made a full attempt: In the mean time, I wiſh we did more univerſally propagate the *Horſe-cheſs-nut*, which being eaſily increas'd from layers grows into a goodly *Standard*, and bears a moſt glorious flower, even in our cold Country: This Tree is now all the *mode* for the Avenues to their Countrey palaces in *France*, as appears by the late *Superintendents* Plantation at *Vaux*.

5. The uſe of the *Cheſs-nut* is (next the *Oak*) one of the moſt ſought after by the *Carpenter* and *Joyner*: It hath formerly built a good part of our ancient houſes in the *City* of *London*, as does yet appear. I had once a very large *Barn* neer the *City* fram'd intirely of this *Timber*: And certainly they grew not far off; probably in ſome *Woods* neer the *Town*: For in that deſcription of *London* written by *Fitz-Stephens*, in the Reign of *Hen.* 2. he ſpeaks of a very noble and large *Foreſt* which grew on the *Boreal* part of it: *Proxime* (ſays he) *patet foreſta ingens, ſaltus nemoroſi ferarum, latebræ cervorum, damarum, aprorum, & taurorum Sylveſtrium, &c.* a very goodly thing it ſeems, and as well ſtor'd with all ſorts of good Timber, as with *Veniſon* and all kind of *Chaſe*. The *Cheſs-nut* affords the beſt Stakes and Poles for *Paliſades* and *Hops*, as I ſaid before; and being planted in Hedge-rows *& circa agrorum itinera*, or for *Avenues* to our *Country-houſes*, they are a magnificent and royal Ornament: But we give that fruit to our *Swine* in *England*, which is amongſt the delicaces of *Princes* in other Countries; and being of the larger Nut, is a luſty, and maſculine food for *Ruſtics* at all times. The beſt *Tables* in *France* and *Italy* make them a *ſervice*, eating them with *Salt*, in *Wine*, being firſt roſted on the *Chapplet*; and doubtleſs we might propagate their uſe, amongſt our *common people*, at leſt (as of old the Βαλανοφάγοι) being a *Food* ſo cheap, and ſo laſting. Finally,

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CHAP. VIII.

Of the Wall-nut.

1. THe *Wall-nut* is to be elevated like the *Cheſs-nut*, being planted of the *Nut*, or ſet at the diſtance you would *Wall-nut.*

have him ſtand; for which they may be prepared by bedding them (being dry) in *ſand*, or good earth, till *March*, from the time they fell, or were beaten off the Tree: Or if *before* they be ſet with *husk* and all upon them; for the extream bitterneſs thereof is moſt exitial and deadly to *worms:* Some ſupple them a little in warm *Cows-milk*; but being treated as before, you will find them already *ſprouted*, and have need only to be planted where they are to abide; becauſe (as we ſaid long ſince) they are moſt impatient of *tranſplanting:* But if there be an abſolute neceſſity of removing, let your *Tree* be about four years old, and then by no means touch the *head* with your *knife*, nor cut away ſo much as the very *Tap-root*; ſince being of a pithy and hollow ſubſtance, the leaſt diminution, or bruiſe, will greatly endanger the killing.

2. The *Wall-nut* delights in a dry, ſound and rich land; eſpecially, if it incline to a feeding *Chalk*, or *Marle*; and where it may be protected from the cold; as in great Pits, Vallies, and Highway ſides; alſo in Stony-grounds, and on *Hills* eſpecially *Chalkie:* likewiſe in *Corn-fields:* Thus *Burgundy* abounds with them, where they ſtand in the middeſt of goodly *Wheat-lands* at ſixty and an hundred fo͞ot diſtance; and it is ſo far from hurting the *crop*, that they look on them as a great preſerver, by keeping the grounds warm; nor do the roots hinder the Plow. When ever they fell a *Tree* (which is only the old, and decay'd) they always plant a young one neer him; and in ſeveral places 'twixt *Hanaw* and *Francfort* in *Germany*, no young *Farmer* whatſoever is permitted to *Marry* a *Wife*, till he bring proof that he hath planted, and is a *Father* of ſuch a ſtated number of *Wall-nut-trees*, as the *Law* is inviolably obſerved to this day for the extraordinary benefit which this *Tree* affords the *Inhabitants*: And in truth, were this *Timber* in greater plenty amongſt us, we ſhould have far better *Utenſiles* of all ſorts for our houſes, as *Chairs*, *Stools*, *Bed-ſteads*, *Tables*, *Wainſcot*, *Cabinets*, *&c.* in ſtead of the more vulgar *Beech*, ſubject to the *worm*, weak and unſightly.

3. They render moſt graceful *Avenues* to our Country dwellings, and do excellently in *hedge-rows*; but had need be planted at forty, or fifty foot interval; for they affect to ſpread both their roots and branches. The *Bergſtras* (which extends from *Heidelberg* to *Darmſtadt*) is all planted with *Wall-nuts*; for ſo by another ancient *Law* the *Bordurers* were oblig'd to nurſe up, and take care of them; and that chiefly for their ornament and ſhade; ſo as a man may ride for many miles about that Country, under a continu'd *Arbour*, or *Cloſe-walk*; The *Traveller* both refreſh'd with the *Fruit*, and the *Shade:* How would ſuch publick *Plantations* improve the glory and wealth of a *Nation!* but where ſhall we find the *ſpirits* amongſt our Country-men? Yes, I will adventure to inſtance in thoſe *Plantations* of Sir *Richard Stidolph*, upon the *Downs* neer *Lether-head* in *Surrey*; and ſo about *Caſſaulton*, where many *thouſands* of theſe *Trees* do celebrate the *induſtry* of the *Owners*; and will certainly reward it with infinite *improvement*, as I am aſſur'd they do in part already, and that very conſiderably;

beſides

besides the *Ornament* which they afford to those pleasant *Tracts*, for some *miles* in circumference. I remember *Monsieur Sorbiere*, in a *Sceptical* discourse to *Monsieur de Martel*, speaking of the readiness of the People in *Holland* to furnish, and maintain whatsoever may conduce to the *publick Ornament*, as well as *Convenience*; tells us, that their *Plantations* of these, and the like *Trees* even in their very *Roads* and common *High-ways* are better preserv'd, and entertain'd (as I my self have likewise been often an eye witness) then those about the *Houses* and *Gardens of pleasure* belonging to the *Nobless* and *Gentry* of most other *Countries*: And in effect it is a most ravishing object to behold their amenities in this particular: With us says he (speaking of *France*) they make a jest at such political *Ordinances*, by ruining these publick and useful Ornaments, if haply some more prudent *Magistrate* do at any time introduce them. Thus in the Reign of *Henry* the *fourth*, during the *Superintendency* of *Monsieur de Sulli*, there was a resolution of adorning all the *High-ways* of *France* with *Elms*, *&c.* but the rude and mischievous *Paysans* did so hack, steal, and destroy what they had begun, that they were forc'd to desist from the through prosecution of the design; so as there is nothing more expos'd, wild, and less pleasant then the common *Roads* of *France* for want of *shade*, and the decent *limits* which these sweet, and divertissant *Plantations* would have afforded; not to omit that *Political* use (as my *Lord Bacon* hints it where he speaks of the *Statues*, and *Monuments* of brave men, and such as had well deserv'd of the *Publick*, erected by the *Romans* even in their *High-ways*,) since doubtless, such noble and agreeable objects would exceedingly divert, entertain and take off the *Minds* and *Discourses* of *Melancholy* people, and pensive *Travellers*, who having nothing but the dull and enclos'd ways to cast their eyes on, are but ill *Conversation* to themselves, and others.

4. What universal use the *French* make of the *Timber* of this sole *Tree* for domestic affairs may be seen in every room both of poor and rich: It is of singular account with the *Joyner*, for the best grain'd and colour'd *Wain-scot*; with the *Gun-smith* for *Stocks*; the *Drum-maker* for rimbs: the *Cabinet-maker* for *Inlayings*, especially the firm and close *Timber* about the *Roots*, which is admirable for *fleck'd* and *chambletted* works, and the older it is, the more estimable; but then it should not be put in *work* till throughly *season'd*; because it will shrink beyond expectation: Besides these uses of the *Wood*, the *Fruit* is for *preserves*, for *Oyl* and *Food*; and the very husks and leaves being macerated in warm water, and that liquor poured on the *Carpet* of *Walks* and *Bowling-greens*, does infallibly kill the *Worms* without endangering the grass; not to mention the *Dye* which is made of this *Lixive* to colour *Wooll*, *Woods*, and *Hair*, as of old they us'd it. That which is produc'd of the *thick shell* becomes best *Timber*; that of the *thinner*, better Fruit. *Columella* has sundry excellent rules how to ascertain, and accelerate the *growth* of this *Tree*, and to improve its *qualities*, which I recommend to the farther Industrious, and pass now to *the less principal*.

CHAP. IX.

Of the Service.

Service. 1. THe *Service-tree* is rais'd of the *Sorbs*, or Berries, which being *ripe* (that is) *rotten* about *September*, may be ſown like *Beech-maſt:* It is reported that the *Sower* never ſees the fruit of his labour; either for that it bears only being very old; or that Men are commonly *ſo* before they think of planting *Trees:* But this is an egregious miſtake; for theſe come very ſoon to be *Trees*, and being planted young thrive exceedingly; I have likewiſe planted them as big as my arm ſucceſsfully: The beſt way is therefore to propagate them of *Suckers* or *Sets*; they delight in reaſonable good ground, rather inclining to cold then over hot; for in places which are too dry they never bear kindly.

2. The *Timber* is uſeful for the *Joyner*, and being of a very delicate *Grain*, for divers *curioſities:* Alſo it is taken to build with, yielding *Beams* of conſiderable ſubſtance: The ſhade is beautiful for *Walks*, and the *Fruit* not unpleaſant, and in ſome caſes *Medicinal.*

CHAP. X.

Of the Maple.

Maple. 1. THe *Maple* [*Acer*] (of which *Authors* reckon very many kinds) was of old held in equal eſtimation almoſt with the *Citron*; eſpecially the *Bruſcum*, the *French-Maple*, and the *Peacocks-tail-Maple*, which is that ſort ſo elegantly undulated, and criſped into variety of *curles:* They are all produced of the *Keys*, like the *Aſh*; and like to it, affect a ſound and a dry mould; growing both in *Woods* and *Hedge-rows*, eſpecially in the latter; which if rather hilly then low affords the faireſt *Timber.* By ſhreading up the boughs to a head I have caus'd it to ſhoot to a wonderful height in a little time; but if you would *lop* it for the *Fire*, let it be done in *January.*

2. The *Timber* is far ſuperiour to *Beech* for all uſes of the *Turner*, who ſeeks it for *Diſhes*, *Trays*, *Trenchers*, *&c.* as the *Joyner* for *Tables*, *Inlayings*, and for the delicateneſs of the grain when the *knurs* and *nodoſities* are rarely *diapred*, which does much advance its price: Alſo for the lightneſs (under the name *Ayer*) imploy'd often by thoſe who make *Muſical-inſtruments.* But there is a larger ſort, which we call the *Sycamor.*

CHAP.

CHAP. XI.

Of the Sycomor.

1. THe *Sycomor* is much more in reputation for its *ſhade* then it deſerves; for the *Leaves* which fall early (like thoſe of the *Aſh*) turn to a *Mucilage*, and putrifie with the firſt moiſture of the ſeaſon; ſo as they contaminate and mar our *Walks*, and are therefore (by my conſent) to be baniſh'd from all curious *Gardens* and *Avenues:* There is in *Germany* a better ſort of *Sycomor* then ours, wherewith they make *Saddle-trees*, and divers other things of uſe; our own is excellent for *Cart* and *Plow-timber*, being light, tough, and not much inferiour to *Aſh* it ſelf. *Sycomor.* 2.

CHAP. XII.

Of the Horn-Beam.

1. THe *Horn-beam*, in *Latine* the *Carpinus*, is planted of *Sets*; though it may likewiſe be raiſed from the *Seeds*, which being mature in *Auguſt* ſhould be ſown in *October*; but the more expeditious way, is, by *Sets* of about an inch *diametre*, and cut within half a foot of the Earth: Thus it will advance to a conſiderable Tree. The *places* it chiefly deſires to grow in are in cold hills, and in the barren and moſt expos'd parts of *Woods*. *Horn-beam.*

2. Amongſt other uſes which it ſerves for, as *Mills* (for which it excels either *Yew* or *Crab*) *Yoak-timber* (whence of old 'twas call'd ζυγὰ) *heads* of *Beetles*, *Stocks*, and handles of *Tools* (for all which purpoſes its extream toughneſs commends it to the *Huſbandman*) being planted in ſmall *Foſſes*, or *Trenches*, at half a foot *interval*, and in the ſingle row it makes the nobleſt and the ſtatelieſt *Hedges* for long Walks in *Gardens*, or *Parks*, of any Tree whatſoever whoſe leaves are *deciduous*, and forſake their branches in *Winter*; becauſe it grows tall, and ſo ſturdy as not to be wronged by the *Winds:* Beſides, it will furniſh to the very foot of the *ſtem*, and flouriſhes with a gloſſie and poliſh'd *verdure* which is exceeding delightful, of long continuance, and of all other the harder Woods the ſpeedieſt Grower; maintaining a ſlender, upright *ſtem*, which does not come to be *bare*, and ſticky in many years. That admirable *Eſpalier-hedge* in the long middle walk of *Luxembourg* Garden at *Paris* (then which there is nothing more graceful) is planted of this Tree; and ſo is that *Cradle* or *Cloſe-walk*, with that perplext *Canopie*, which covers the ſeat in his *Majeſties* Garden at *Hampton-Court*. Theſe *Hedges* are *tonſile*; but where they are maintain'd to fifteen or twenty foot height (which is very

very frequent in the *places* before mention'd) they are to be cut, and kept in order with a *Sythe* of four foot long, and very little *falcated*; this is fix'd on a long *sneed* or streight handle, and does wonderfully expedite the trimming of *these* and the like Hedges.

CHAP. XIII.

Of the Lime-Tree.

Lime-tree. 1. THe *Lime-Tree*, [*Tilia*] is of two kinds; the *Male*, which is harder, fuller of knots, and of a redder colour; but producing neither *Flower*, nor *Seed*, as does the *Female*, whose *Blossome* is very odoriferous perfuming the *Air*: The *Wood* is likewise thicker, of small pith, and not obnoxious to the *Worm*. We send commonly for this Tree into *Flanders* and *Holland*, to our excessive cost, whiles our own *Woods* do in some places spontaneously produce them, from whence I have received many of their *Berries*; so as it is a shameful negligence, that we are no better provided of *Nurseries* of a *Tree* so choice and universally acceptable. For so they may be rais'd either of the *Seeds* in *October*; or (with better success) by the *Suckers*, and *Plants*, after the same *Method*, and in as great abundance as the *Elme*, like to which it should be cultivated.

2. The *Lime-tree* affects a rich feeding Soil; In such Ground their growth will be almost incredible for speed and spreading. They may be planted as big as ones Leg; their *Heads* topp'd at about six foot *bole*; thus it will become (of all other) the most proper and beautiful for *Walks*, as producing an upright *Body*, smooth and even *Bark*, ample *Leaf*, sweet *Blossom*, and a goodly *shade* at distance of eighteen or twenty foot. 3. The *Prince Elector* did lately remove very great *Lime-Trees* out of one of his *Forests*, to a steep hill exceedingly expos'd to the heat of the *Sun* at *Hidelbourg*; and that in the midst of *Summer*: They grow behind that strong *Tower* on the *South-west*, and most torrid part of the eminence; being of a dry reddish barren earth; yet do they prosper rarely well: But the heads were cut off, and the *pits* into which they were transplanted were (by the industry and direction of one *Monsieur de Son*, a *Frenchman*) fill'd with a composition of *Earth* and *Cow-dung* which was exceedingly beaten, and so *diluted* with water as it became almost a liquid *pap*: It was in this that he plunged the *Roots*, covering the surface with the turf: A singular example of removing so great Trees at such a *season*, and therefore by me taken notice of here expressly.

4. The Timber of a well grown *Lime* is convenient for any use that the *Willow* is; but much to be preferr'd, as being both stronger, and yet lighter; whence *Virgil* calls them *tilias leves*; and therefore

fore *turn'd* into *Boxes* for the *Apothecaries*; and *Columella* commends *Arculas tiliaceas:* with the *Twigs* they made *Baskets*, and *Cradles*; and of the ſmoother ſide of the bark *Tablets* for *Writing*; for the antient *Philyra* is but our *Tilia*. The *Gravers* in wood do ſometimes make uſe of this fine *Material*; and even of the courſeſt *membrane*, or ſlivers of the *Tree* growing 'twixt the *bark* and the main *body*, they now twiſt into *Baſs-ropes*; Beſides the *Truncheons* make a far better *Coal* for *Gun-powder* then that of *Alder* it ſelf: and the extraordinary *candor* and *lightneſs* has digniſi'd it above all the *Woods* of our *Foreſt* in the hands of the Right Honourable the *White-ſtave* Officers of his *Majeſties* Imperial *Court*. Thoſe royal *Plantations* of theſe Trees in the *Parks* of *Hampton-Court*, and St. *James*'s will ſufficiently inſtruct any man how theſe (and indeed all other *Trees* which ſtand ſingle) are to be govern'd, and defended from the injuries of *Beaſts*, and ſometimes more *unreaſonable* Creatures, till they are able to protect themſelves. In *Holland* (where the very high-ways are adorn'd with them) they frequently clap three or four *Deal-boards* (in manner of a cloſe trunk) about them; but it is not ſo well; becauſe it keeps out the *air* which ſhould have free acceſs, and intercourſe to the *bole*, and by no means be excluded from flowing freely about them, or indeed any other *Trees*; provided they are ſecur'd from the violence of impetuous winds, *&c.* as his *Majeſties* are without thoſe cloſe *Coffins*, in which the *Dutch-men* ſeem rather to bury them alive: In the mean time, is there a more raviſhing, or delightful object then to behold ſome intire *ſtreets*, and whole *Towns* planted with theſe *Trees*, in even lines before their doors, ſo as they ſeem like *Cities* in a *wood?* this is extreamly freſh, and skreens the houſes both from *Winds*, *Sun* and *Duſt*; then which there can be nothing more deſirable where ſtreets are much frequented.

CHAP. XIV.

Of the Quick-Beam.

Quick-beam.

1. THe *Quick-beam*, [*Ornus*] or (as others term it) the *Whitchen*, is a *ſpecies* of *Wild-Aſh*. The *Berries* which it produces in *October* may then be ſown; or rather the *Sets* planted: It riſes to a reaſonable ſtature, ſhoots upright, and ſlender; and conſiſts of a fine ſmooth *bark*. It delights to be both in *Mountains* and *Woods*, and to fix it ſelf in good light ground. Beſides the uſe of it for the *Husbandmans* Tools (as once by a *Statute* of *Hen.* 8. for *Bows*) and for *Fuel*; I have not yet obſerved any other; ſave that the *Bloſſoms* are of an agreeable ſcent. 2.

CHAP.

CHAP. XV.

Of the Birch.

Birch. 1. THe *Birch* [*Betula*] is altogether produc'd of *ſuckers* (though it ſheds a kind of *Samera* about the *Spring*) which being planted at four or five foot interval, in ſmall twigs, will ſuddenly riſe to Trees; provided they affect the ground, which cannot well be too barren; for it will thrive both in the dry, and the wet, Sand and Stony, *Marſhes* and Bogs; the *water-galls*, and *uliginous* parts of *Foreſts* that hardly bear any graſs, do many times ſpontaneouſly produce it in abundance whether the place be high, or low, and nothing comes amiſs to it.

Plant the ſmall *twigs*, or *ſuckers* having *roots*, and after the firſt year cut them within an *inch* of the ſurface; this will cauſe them to ſprout in ſtrong, and luſty *tufts*, fit for *Copſe*, and *Spring-woods*; or, by reducing them to one *ſtem*, render them in a very few
2. years fit for the *Turner*. For though *Birch* be of all other the worſt of *Timber*; yet has it its various uſes, as for the *Husbandmans Ox-yoaks*; alſo for *Hoops*, *Paniers*, *Brooms*, *Wands*, *Bavin* and *Fuel*; *great* and *ſmall-coal*, which laſt is made by *charking* the ſlendereſt *bruſh*, and *ſummities* of the twigs; as of the tops and loppings M. *Howards* new *Tanne*: Laſtly, of the *whiteſt* part of the *old wood*, found commonly in doating *Birches*, is made the grounds of our *Gallants Sweet-powder*; to ſay nothing here of the Magiſterial *Faſces*, for which antiently the Cudgels were us'd by the *Lictor*; as now the gentler *Rods* by our tyrannical *Pædagogues*.

3. I ſhould here add the uſes of the *water* too, had I not already proteſted againſt tampering with the *Medicinal* virtues of *Trees*, in the entrance of this *Treatiſe*: But if the ſovereign effects of the *juice* of this deſpicable *Tree* ſupply its other defects (which makes ſome judge it unworthy to be brought into the *Catalogue* of *Woods* to be propagated) I may for *once* be permitted to play the *Empiric*, and to gratifie our laborious *Wood-man* with a draught of his own *Liquor*: And the rather, becauſe theſe kind of *Secrets* are not yet ſufficiently cultivated; and ingenious *Planters* would by all means be encourag'd to make more *trials* of this nature, as the *Indians*, and other *Nations* have done on their *Palmes*, and Trees of ſeveral kinds, to their great emolument. The *Myſtery* is no more then this: About the beginning of *March* (when the *buds* begin to be proud and turgid) with a *Chizel* and a *Mallet* cut a ſlit almoſt as deep as the very *pith*, under ſome *bough*, or branch of a well ſpreading *Birch*; cut it *oblique* and not *long-ways* (as a good *Chirurgion* would make his *orifice* in a *Vein*) inſerting a ſmall *ſtone* or *chip*, to keep the lips of the wound a little open: Sir *Hugh Plat*, giving a general rule for the gathering of *ſap*, and *tapping* of *Trees*, would have it done within one foot of the ground, the firſt

rind

rind taken off, and then the white bark ſlit over-twhart, no farther then to the body of the Tree: Moreover, that this *wound* be made only in that part of the *bark* which reſpects the *South-weſt*, or between thoſe quarters; becauſe (ſays he) little, or no ſap riſeth from the *Northern*.

In this *ſlit*, by the help of your *knife* to open it, he directs that a *leaf* of the *tree* be inſerted, firſt fitted to the dimenſions of the ſlit, from which the *ſap* will diſtill in manner of *filtration*: take away the *leaf*, and the *bark* will cloſe again, a little earth being clapped to the ſlit: Thus the *Knight* for any *Tree*: But we have already ſhew'd how the *Birch* is to be treated: Faſten therefore a *Bottle*, or ſome ſuch convenient *Veſſel* appendant: this does the effect better then *perforation* or *tapping*: Out of this aperture will extil a *limpid* and clear *water*, retaining an obſcure ſmack both of the *taſte* and *odor* of the *Tree*; and which (as I am credibly inform'd) will in the ſpace of *twelve* or *fourteen* days preponderate, and outweigh the whole *Tree* it ſelf, *body* and *roots*; which if it be conſtant, and *ſo* happen likewiſe in other *Trees*, is not only ſtupendious, but an *experiment* worthy the conſideration of our profoundeſt *Philoſophers*: *an ex ſola aqua fiunt Arbores?* whether *water* only be the *principle* of *Vegetables*, and conſequently of *Trees*: For evident it is, that we know of no *Tree* which does more copiouſly attract, be it that ſo much celebrated *ſpirit* of the *World* (as they call it) inform of *water* (as ſome) or a certain *ſpecifique liquor* richly *impregnated* with this *Balſamical* property: That there is ſuch a *Magnes* in this ſimple *Tree* as does manifeſtly draw to it ſelf ſome *occult*, and wonderful *virtue*, is notorious; nor is conceivable, indeed, the difference between the efficacy of that *liquor* which diſtills from the *bole* or parts of the *Tree* neerer to the *Root*, (where Sir *Hugh* would celebrate the *Inciſion*) and that which weeps out from the more ſublime *Branches*: But I refer theſe diſquiſitions to the learned; eſpecially, as mention'd by that incomparable *Philoſopher*, and my moſt noble Friend, the honourable M^r. *Boyle*, in his *ſecond part* of the uſefulneſs of *Natural Philoſophy*: *Sect.* 1. *Eſſay* 3^d. where he ſpeaks of the *Manna del Corpo*, or *Trunk-manna*, as well as of that *Liquor* from the *bough*: ſo of the *Sura* which the *Coco-trees* afford; and that *Polonian* ſecret of the Liquor of the *Wall-nut-tree* root; with an encouragement of more frequent *Experiments* to educe *Saccharine* ſubſtances upon theſe occaſions: But the *Book* being publiſh'd ſo long ſince this *Diſcourſe* was ready, I have only here the liberty to refer the *Reader* to one of the beſt Entertainments in the world.

4. In the mean time, the *liquor* of this *Tree* is eſteem'd moſt powerful for the diſſolving of the *Stone* in the bladder: *Helmont* ſhews how to make a *Beer* of the water; but the *Wine* is a moſt rich *Cordial*, curing (as I am told) Conſumptions, and ſuch interiour diſeaſes as accompany the *Stone* in the *Bladder* or *Reins*: This *Wine*, exquiſitely made, is ſo ſtrong, that the common ſort of *ſtone-bottles* cannot preſerve the *ſpirits*, ſo ſubtile they are and *volatile*; and yet it is gentle, and very harmleſs in operation within the

Body, and exceedingly ſharpens the *Appetite*, being drank *ante paſtum*: I will preſent you a *Receipt*, as it was ſent me by a fair *Lady*.

To every gallon of *Birch-water* put a quart of *Hony* well ſtirr'd together; then boil it almoſt an hour with a few *Cloves*, and a little *Limon-peel*, keeping it well ſcumm'd: When it is ſufficiently boil'd, and become cold, add to it three or four ſpoonfuls of good *Ale* to make it work (which it will do like new *Ale*) and when the *Yeſt* begins to ſettle, *bottle* it up as you do other *winy* liquors. It will in a competent time become a moſt briſk and ſpiritous *Drink*, which (beſides the former virtues) is a very powerful *opener*, and doing wonders for cure of the *Pthiſick*: This *Wine* may (if you pleaſe) be made as ſucceſsfully with *Sugar* in ſtead of Hony, ℔j. to each *Gallon* of Water; or you may dulcifie it with *Raiſins*, and compoſe a *Raiſin-wine* of it. I know not whether the quantity of the ſweet *Ingredients* might not be ſomewhat reduc'd, and the operation improv'd: But I give it as receiv'd.

But beſides theſe, *Beech*, *Alder*, *Aſh*, *Elder*, *&c.* would be attempted for *Liquors*: Thus *Crabs*, and even our very *Brambles* may poſſibly yield us *medical* and uſeful *Wines*. The *Poplar* was heretofore eſteem'd more *phyſical* then the *Betula*. The ſap of the *Oak*, juice, or decoction of the inner bark cures the *Faſhions*, or *Farcy*, a *virulent* and dangerous infirmity in *Horſes*, and which (like *Cancers*) were reputed incurable by any other *Topic*, then ſome actual, or potential *cautery*: But, what is more noble; a dear friend of mine aſſur'd me, that a Country *Neighbour* of his (at leaſt *fourſcore* years of age) who had lain ſick of a bloody *Strangury* (which by cruel torments reduc'd him to the very *article* of death) was, under *God*, recover'd to perfect, and almoſt *miraculous* health, and ſtrength (ſo as to be able to fall ſtoutly to his labour) by one ſole draught of *Beer*, wherein was the *decoction* of the internal *bark* of the *Oak-tree*; And I have ſeen a compoſition of an admirable *ſudorific*, and *diuretic* for all affections of the *Liver* out of the *like* of the *Elm*, which might yet be drank daily as our *Cophee* is, and with no leſs delight; but *Quacking* is not my *trade*: I ſpeak only here as a plain *Husband-man*, and a ſimple *Foreſter*, out of the limits whereof I hope I have not unpardonably tranſgreſs'd. *Pan* was a *Phyſician*, and *he* (you know) was *Preſident* of the *Woods*. But I proceed.

CHAP. XVI.

Of the Haſell.

Haſel. 1. THe *Haſell* is beſt rais'd from the *Nuts*, which you ſhall ſow like *Maſt* in a pretty deep *furrow* toward the end of *February*: Light ground may immediately be ſown and *harrow'd* in very accurately; but in caſe the mould be *clay*, plow it earlier, and

and let it be ſufficiently mellow'd with the *froſts*; and then the *third* year cut your *Trees* near to the ground with a ſharp *Bill*, the *Moon* decreaſing.

2. But if you would make a *Grove* for pleaſure, plant them in *Foſſes* at a *yard* diſtance, and *cut* them within half a foot of the earth, dreſſing them for three or four *Springs*, and *Autumns*, by only looſning the *Mould* a little about their roots. Others there are who ſet the *Nuts* by hand at one foot diſtance, to be *tranſplanted* the third year at a yard aſunder: But this work is not to be taken in hand ſo ſoon as the *Nuts* fall, till *Winter* be well advanc'd; becauſe they are exceedingly obnoxious to the *froſts*; nor will they ſprout till the *Spring*: Beſides, *Vermine* are great devourers of them: Preſerve them therefore *moiſt*, not *mouldy*, by laying them in their own *dry* leaves, or in *Sand*, till *January*.

Plantis & duræ Coryli naſcuntur-----

3. *Haſels* are likewiſe propagated of *Sets*, and *Suckers*; from whence they thrive very well, the *ſhoots* being of the ſcantlings of ſmall *wands*, and *ſwitches*, or ſomewhat bigger, and ſuch as have drawn divers *hairy* twigs, which are by no means to be *diſbranch'd*, no more then their *Roots*, unleſs by a very ſparing and diſcreet hand. Thus your *Coryletum* or *Copſe* of *Haſels* being planted about *Autumn*, may (as ſome practiſe it) be *cut* within three or four inches of the ground the *Spring* following, which the new *Cion* will ſuddenly repair in cluſters and tufts of fair *poles* of twenty, and ſometimes thirty foot long: But, I rather ſhould ſpare them till two, or three years after, when they ſhall have taken ſtrong hold, and may be cut cloſe to the very earth; the improſperous, and feeble ones eſpecially. Thus are likewiſe *Filberts* to be treated, both of them improv'd much by *tranſplanting*.

4. For the *place*, they above all affect *cold*, *barren*, dry and *ſandy* grounds; alſo *Mountains*, and even *rockie* ſoils produce them; but more plentifully if ſomewhat moiſt, dankiſh, and moſſie, as in the freſher *Bottoms*, and ſides of *Hills*, and in *Hedge-rows*. Such as are maintain'd for *Copſes*, may after twelve years be *fell'd* the firſt time; the next at ſeven or eight, *&c.* for by this period their *Roots* will be compleatly vigorous. You may *plant* them from *October* to *January*, provided you keep them carefully *weeded* till they have taken faſt hold.

5. The uſe of the *Haſel* is for *Poles*, *Spars*, *Hoops*, *Hurdles*, *Forks*, *Angling-rods*, *Faggots*, *Coals*; alſo for *With's* and bands, upon which I remember *Pliny* thinks it a pretty *Speculation*, that a wood ſhould be ſtronger to bind withall being *bruis'd* and *divided*, then when *whole* and *entire*; laſtly, for riding *Switches* and *Divinatory Rods* for the detecting and finding out of *Minerals*; at leaſt, if that *tradition* be no impoſture.

There is a compendious expedient for the thickning of *Copſes* which are too *tranſparent*, by laying of a *Sampler*, or *pole* of an

Haſel, Aſh, Poplar, &c. of twenty, or thirty foot in length (the head a little lopp'd) into the ground, giving it a *chop* neer the foot, to make it ſuccumb; *this* faſtned to the earth with a *hook* or two, and cover'd with ſome freſh *mould* at a competent depth (as *Gard'ners* lay their *Carnations*) will produce a world of *ſuckers*, thicken and furniſh a *Copſe* ſpeedily. But I am now come to the *Water-ſide*; let us next conſider *the Aquatic.*

CHAP. XVII.

Of the Poplar.

Poplar. 1. I Begin this ſecond *Claſs* (according to our former *Diſtribution*) with the *Poplar*, of which there are ſeveral kinds; *White, Black, &c.* beſides the *Aſpen:* The *white* is the moſt ordinary with us, to be rais'd in abundance by every *ſet* or *ſlip:* Fence the ground as far as any old *Poplar* roots extend, they will furniſh you with *ſuckers* innumerable, to be ſlip'd from their *mothers*, and *tranſplanted* the very firſt year. You ſhall need no other *Nurſery.* When they are young their *leaves* are ſomewhat broader, and rounder then when they grow aged. In moiſt, and *boggy* places they will flouriſh wonderfully, ſo the ground be not *ſpewing*; but eſpecially neer the *Margins* and banks of *Rivers*,

Populus in fluviis ——— Virg.

Alſo *trunchions* of ſeven, or eight foot long, thruſt two foot into the *earth*, when once *rooted*, may be cut at ſix inches above ground; and thus placed at a yard diſtant they will immediately furniſh a kind of *Copſe.* But in caſe you plant them of *rooted-trees*, or ſmaller *ſets*, fix them not ſo *deep*; for though we bury the *Trunchions* thus profound; yet is the *root* which they ſtrike
2. *Aſpen.* commonly but ſhallow. The *Aſpen* only (which is that kind of white *Poplar* bearing a ſmaller, and more tremulous leaf) thruſts down a more ſearching foot, and in this likewiſe differs, that *he* takes it *ill* to have his *head* cut off: *Pliny* would have ſhort *trunchions* couched two foot in the ground (but firſt two days dry'd) at one foot and half diſtance, and then moulded over.

3. *Abele.* 3. There is ſomething a finer ſort of *White Poplar* which the *Dutch* call *Abele*, and we have much tranſported out of *Holland:* Theſe are alſo beſt propagated of *ſlips* from the *Roots*, the leaſt of which will *take*, and may in *March*, at three, or four years growth be tranſplanted.

4. In *Flanders* (not in *France*, as a late Author *pretends*) they have large *Nurſeries* of them, which firſt they plant at one foot diſtance, the mould light, and moiſt; but, as I ſaid, they muſt be *interr'd* pretty deep, and kept clean by *pruning* them to the middle

dle *ſhoot* for the firſt two years, and ſo till the third or fourth: When you *Tranſplant*, place them at eight, ten or twelve foot Interval: They will likewiſe grow of *Layers*, and even of *cuttings*: In *three years* they will come to an incredible altitude; in *twelve*, be as big as your middle; and in *eighteen*, or *twenty*, arrive to full perfection: A *ſpecimen* of this advance we have had of an *Abele* Tree at *Sion*, which being lopp'd in *Febr.* 1651. did by the end of *October* 52. produce branches as big as a mans *wriſt*, and *ſeventeen* foot in length: As they thus increaſe in *bulk*, their *value* and price advance likewiſe; ſo as the *Dutch* look upon a *Plantation* of theſe *Trees* as an ample portion for a *Daughter*, and none of the leaſt effects of their good *Husbandry*; which truly may very well be allow'd, if that *calculation* hold, which the *Knight* has aſſerted, who began his *Plantation* not long ſince about *Richmond*; that 30 *li.* being laid out in theſe *Plants*, would render at the leaſt *ten thouſand pounds* in *eighteen* years: Every *Tree* affording thirty *Plants*, and every of them thirty more, after each ſeven years improving *twelve pence* in growth, till they arriv'd to their *acme*.

5. The *Black Poplar* grows rarely with us; it is a ſtronger, and *taller* Tree then the *White*, the *leaves* more dark, and not ſo ample. Divers ſtately ones of theſe I remember about the banks of *Po* in *Italy*, which *River* being the old *Eridanus* ſo celebrated by the *Poets* in which the temerarious *Phaëton* is ſaid to have been *precipitated*, doubtleſs gave argument to that *fiction* of his ſad Siſters *Metamorphoſis* into theſe *Trees*; but for the *Amber* of their precious *tears* I could hear of no ſuch matter, whiles paſſing down that *River* towards *Ferrara* I diverted my ſelf with this ſtory of the ingenious *Poet*.

6. The beſt uſe of the *Poplar*, and *Abele* (which are all of them *hoſpitable* Trees, for any thing thrives under their *ſhades*) is for *Walks*, and *Avenues* about *Grounds* which are ſituated low, and neer the water, till coming to be very old they are apt to grow *knurry*, and out of proportion: The *Timber* is incomparable for all ſorts of white *Woodden Veſſels*, as *Trays*, *Bowls* and other *Turners* ware; likewiſe to make *Carts*, becauſe it is exceeding light; for *Vine*, and *Hop-props*, and divers *viminious* works. The loppings in *January* are for the *Fire*; and of the *twigs* (with the leaves on) are made *Brooms*. The *Brya* or *Catkins* attract the *Bees*, as do alſo the *leaves* more tenacious of the *Mel-dews* then moſt other *Foreſt-trees*, the *Oak* excepted.

Of the *Aſpen* our *Woodmen* make *Hoops*, *Fire-wood* and *Coals*, *&c.*

CHAP.

CHAP. XVIII.

Of the Alder.

Alder. 1. THe *Alder* is of all other the moſt faithful lover of *watery* and *boggy* places, and thoſe moſt deſpis'd weeping parts, or *water-galls* of *Foreſts*, —— *craſſisq; paludibus Alni.* They are propagated of *Trunchions*, and will come of *Seeds* (for ſo they raiſe them in *Flanders*, and make wonderful profit of the *Plantations*) like the *Poplar*; or of *Roots*, which I prefer, being ſet as big as the ſmall of one's *leg*, and in length about two foot; whereof one would be plunged in the *mud.* This profound fixing of *Aquatic-trees* being to preſerve them *ſteedy*, and from the concuſſions of the *winds*, and violence of *waters*, in their *liquid* and ſlippery foundations. They may be placed at four, or five foot diſtance; and when they have ſtruck *root*, you may *cut* them, which will cauſe them to ſpring in *clumps*, and to ſhoot out into many uſeful *poles.* But if you plant ſmaller *ſets*, cut them not till they are arriv'd to ſome competent bigneſs; and that in a proper *ſeaſon*; which is, for all the *Aquatics*, not till *Winter* be well advanc'd, in regard of their *pithy* ſubſtance. Therefore ſuch as you ſhall have occaſion to make uſe of before that period ought to be well grown, and *fell'd* with the *earlieſt*, and in the firſt *quarter* of the increaſing *Moon*; that ſo the ſucceſſive *ſhoot* receive no prejudice.

2. There are a ſort of *Husbands* who take exceſſive pains in *ſtubbing* up their *Alders* where-ever they meet them in the *boggy* places of their grounds, with the ſame indignation as one would extirpate the moſt pernicious of *Weeds*; and when they have finiſh'd, know not how to convert their beſt *Lands* to more profit then this (ſeeming deſpicable) *plant* might lead them *to*, were it rightly underſtood: beſides, the *ſhadow* of this *Tree* does feed and nouriſh the very *graſs* which grows under it.

3. You may cut *Aquatic-trees* every third, or fourth year, and ſome more frequently, as I ſhall ſhew you hereafter. They ſhould alſo be abated within half a foot of the principal *head*, to prevent the periſhing of the main *ſtock*; and beſides, to *accelerate* their ſprouting. In ſetting the *Trunchions* it were not amiſs to prepare them a little after they are fitted to the ſize, by laying them a while in *water*; this is alſo practicable in *Willows*, *&c.*

4. Of old they made *Boats* of the greater parts of this Tree

Tunc alnos primum fluvii ſenſêre cavatas.
Georg. 1.

Nec non & torrentem undam levis innatat alnus
Miſſa Pado —— 2.

And as *then*, ſo *now*, are over-grown *Alders* frequently ſought after, for

for ſuch *Buildings* as lye continually under water, where it will harden like a very *ſtone*; whereas being kept in any unconſtant temper it *rots* immediately: *Vitruvius* tells us, that the *Moraſſes* about *Ravenna* in *Italy* were *pil'd* with this *Timber*, to *ſuperſtruct* upon, and highly commends it.

5. The Poles of *Alder* are as uſeful as thoſe of *Willows*; but the *coals* far exceed them; eſpecially for *Gun-powder*: The *Wood* is likewiſe uſeful for *Piles*, *Pumps*, *Water-pipes*, *Troughs*, *Sluces*, *Wooden-heels*, and the ſwelling *bunches* which *are* now and then found in the old Trees, afford the *Inlayer* pieces curiouſly *chamlet-ted* and very hard, *&c.* but the *Fagots* better for the *fire* then for the *draining* of Grounds, by placing them (as the guiſe is) in the *Trenches*; which old rubbiſh of *Flints*, *Stones*, and the like groſs materials, does infinitely exceed, becauſe it is for ever, preſerves the *Draines* hollow, and being a little moulded over will produce good *graſs*, without any detriment to the ground; but this is a *ſecret*, not yet well underſtood, and would merit an expreſs *Paragraph*, were it here ſeaſonable,

——& jam nos inter opacas
Muſa vocat Salices——

CHAP. XIX.

Of the Withy, Sally, Ozier, and Willow.

1. SInce *Cato* has attributed the *third place* to the *Salictum*, preferring it even next to the very *Ortyard*; and (what one would wonder at) before even the *Olive*, *Meadow*, or *Corn-field* it ſelf (for *Salictum tertio loco, nempe poſt vineam, &c.*) and that we find it ſo eaſily *rais'd*, of ſo great and univerſal *Uſe*, I have thought good to be the more particular in my Diſcourſe upon them; eſpecially, ſince ſo much of that which I ſhall publiſh concerning them, is deriv'd from the long *experience* of a moſt learned and ingenious *perſon*, from whom I acknowledge to have receiv'd many of theſe hints. *Withy.*

Not to perplex the *Reader* with the various names, *Greek*, *Gallic*, *Sabinic*, *Amerine*, *Vitex*, *&c.* better diſtinguiſh'd by their *growth*, and *barke*; and by *Latine Authors* all comprehended under that of *Salices*, I begin with the *Withy*. The *Withy* is a reaſonable large *Tree*, and fit to be planted on high banks; becauſe they extend their roots deeper then either *Sallyes* or *Willows*. For this reaſon you ſhall plant them at ten or twenty foot diſtance; and though they grow the ſloweſt of all the *twiggy* Trees; yet do they recompence it with the larger *crop*; the *wood* being tough, and the *twigs* fit to bind ſtrongly; the very *peelings* of the branches being uſeful to bind *Arbour*-poling, and in *Topiary* works, *Vineyards*, *Eſpalier-fruit*, and the like.

2. There

2. There are two principal ſorts of theſe *Withies*, the *hoary*, and the *red Withy* which is the *Greek*; tougheſt, and fitteſt to *bind* whiles the twigs are flexible and tender.

Sallyes. 1. *Sallyes* grow much faſter, if they are planted within reach of *water*, or in a very *mooriſh* ground, or flat plain; and where the ſoil is, by reaſon of extraordinary moiſture, unfit for *Arable*, or *Meadow*; for in theſe caſes it is an extraordinary *improvement*: In a word, where *Birch*, and *Alder* will thrive.

2. Before you *plant* them, it is found beſt to turn the ground with a *Spade*; eſpecially, if you deſign them for a flat.

3. We have three ſorts of *Sallys* amongſt us: The *vulgar*, which proves beſt in dryer banks, and the *hopping Sallys* which require a moiſter ſoil, growing with incredible celerity: And a *third* kind, of a different *colour* from the other *two*, having the twigs *reddiſh*, the leaf not ſo long, and of a more duſky *green*; more brittle whilſt it is growing in *twigs*, and more tough when arriv'd to a competent ſize: All of them uſeful for the *Thatcher*.

4. Of *theſe*, the *hopping Sallys* are in greateſt eſteem, being of a clearer *terſe* grain, and requiring a more *ſucculent* ſoil; beſt planted a foot deep, and a foot and half above ground (though ſome will allow but a foot) for then every branch will prove excellent for future *ſetlings*. After three years growth (being cropp'd the ſecond and third) the *firſt* years increaſe will be 'twixt *eight* and *twelve* foot long generally; the *ſecond* years growth ſtrong enough to make *Rakes* and *Pike-ſtaves*; and the *third* for M. *Blithes*'s trenching *Plow*, and other like *Utenſils* of the *Huſbandman*.

5. If ye plant them at full height (as ſome do, at four years growth, ſetting them five, or ſix foot length, to avoid the biting of *Cattel*) they will be leſs uſeful for ſtraight *ſtaves*, and for *ſetlings*, and make leſs ſpeed in their growth; yet this alſo is a conſiderable *improvement*.

6. Theſe would require to be planted at leaſt five foot diſtance (ſome ſet them as much more) and in the *Quincunx* order: If they affect the *ſoil*, the *leaf* will come large, half as broad as a mans hand, and of a more vivid *green*, always larger the firſt year, then afterwards: ſome plant them ſloping, and croſs-wiſe like a *hedge*; but this impedes their wonderful growth; and (though *Pliny* ſeems to commend it, teaching us how to *excorticate* ſome places of each *ſet*, for the ſooner production of ſhoots) it is but a deceitful *Fence*, neither fit to keep out *Swine*, nor *Sheep*; and being ſet too neer, inclining to one another, they ſoon deſtroy each other.

7. The worſt *Sallys* may be planted ſo neer yet, as to be inſtead of *ſtakes* in a *hedge*, and then their tops will ſupply their dwarfiſhneſs; and to prevent *Hedge-breakers* many do thus plant them; becauſe they cannot eaſily be pull'd up, after once they have ſtruck *root*.

8. If ſome be permitted to wear their *tops* five or ſix years, their

their *Palms* will be very ample, and yield the firſt, and moſt plentiful relief to *Bees*, even before our *Abricots* bloſſom.

The *hopping Sallys* open, and yield their *Palms* before other *Sallys*, and when they are *blown* (which is about the *exit* of *May*, or ſometimes *June*) the *Palms* are four inches long, and full of a fine *Cotton*: A poor Body might in an hours ſpace gather a pound or two of it, which reſembling the fineſt *ſilk*, might doubtleſs be converted to ſome profitable uſe by an ingenious *Houſe-wife*.

9. Of theſe *Hopping Sallys*, after three years rooting, each plant will yield about a ſcore of *ſtaves* of full eight foot in length, and ſo following, for uſe, as we noted above: Compute then how many fair *Pike-ſtaves*, *Perches*, and other uſeful *Materials*, *that* will amount to in an *Acre*, if planted at five foot interval: But a fat, and moiſt ſoil requires indeed more ſpace then a lean or dryer; namely *ſix* or *eight* foot diſtance.

10. You may plant *ſetlings* of the very firſt years growth; but the *ſecond* year they are better, and the *third* year better then the *ſecond*; and the *fourth* as good as the third; eſpecially, if they approach the *water*. A bank at a foot diſtance from the *water* is kinder for them then a *Bog*, or to be altogether *immers'd* in the water.

11. 'Tis good to new-*mould* them about the *Roots* every ſecond or third year; but *Men* ſeldom take the pains. It ſeems that *Sallys* are more hardy then even *Willows* and *Oziers*, of which *Columella* takes as much care as of *Vines* themſelves. But 'tis cheaper to ſupply the *vacuity* of ſuch accidental decays by a new *plantation*, then to be at the charge of *digging* about them three times a year, as that *Author* adviſes; ſeeing ſome of them will decay, whatever care be uſed.

12. *Sallys* may alſo be propagated like *Vines*, by *courbing*, and bowing them in *Arches*, and covering ſome of their parts with mould, *&c.*

13. For *ſetlings*, thoſe are to be preferr'd which grow neereſt to the *ſtock*, and ſo (conſequently) thoſe worſt which moſt approach the *top*. They ſhould be planted in the firſt fair, and pleaſant weather in *February*, before they begin to *bud*. They may be cut in *Spring* for *Fuel*; but beſt in *Autumn* for *uſe*; but in this work (as of *Poplar*) leave a *twig* or two; which being twiſted *Arch-wiſe* will produce plentiful *ſprouts*, and ſuddenly furniſh a *head*.

14. If in our *Copſes* one in four were a *Sally* ſet, amongſt the reſt of varieties, the profit would recompence the care.

15. The ſwift growing *Sally* is not ſo tough, and hardy for ſome *uſes* as the *ſlower*, which makes *ſtocks* for Gard'ners *Spades*; but the other are proper for *Rakes*, *Pikes*, *Mops*, &c. *Sally-coal* is the ſooneſt conſum'd; but of all others the moſt accommodate for *Painters* to deſign their *Work*, and *firſt draught* on *paper* with, *&c.* as being fine, and apt to ſlit into *Pencils*.

16. To conclude, there is a way of *graffing* a *Sally* trunchion;

take it of two fo ot and half long as big as your *wriſt*; Graff at both ends a *Figue*, and *Mulberry* Cion of a foot long, and ſo (without *claying*) ſet the *ſtock* ſo far into the ground as the *plant* may be three or four inches above the earth: This will thrive exceedingly the *firſt* year, and in *three* be fit to *tranſplant*. The ſeaſon for this curioſity is *February*.

Oziers. 1. *Oziers* are commonly diſtinguiſh'd from *Sallyes*, as *Salleys* are from *Withies*; being ſo much ſmaller then the *Sallyes*, and ſhorter-*liv'd*, and requiring more conſtant *moiſture*, and yielding more limber, and flexible *twigs* for *Baskets*, *Flaskets*, *Hampers*, *Chairs*, *Hurdles*, *Stayes*, *Bands*, *&c.* likewiſe for fiſh *Wairs*, and to ſupport the *Banks* of impetuous *Rivers*: In fine, for all *Wicker* and *Twiggy* Works:

Viminibus Salices ——

2. But theſe ſort of *Oziers* would be cut in the new *ſhoot*; for if they ſtand longer they become more inflexible; *cut* them cloſe to the *head* (a foot or ſo above earth) about the beginning of *October*; unleſs you will attend till the *cold* be paſt, which is better; and in the *decreaſe*, for the benefit of the *Workman*; though not altogether for *that* of the *ſtock*, and ſucceeding *ſhoot*: When they are *cut*, make them up into *bundles*, and give them ſhelter; but ſuch as are for *White-work* (as they call it) being thus *faggotted*, ſhould be ſet in *water*, the ends dipped; but for *black*, and *unpeel'd*, preſerv'd under covert only: The *peelings* of the former are for the uſe of the *Gard'ner*.

3. We have in *England* theſe three *vulgar* ſorts; *one* of little worth, being brittle, and very much reſembling the fore-menti-on'd *Sally*, with reddiſh twigs, and more greeniſh, and rounder leaves: *Another* kind there is, call'd *Perch*, of limber and green twigs, having a very ſlender leaf; the *third* ſort is totally like the *ſecond*, only the twigs are not altogether ſo green, but *yellowiſh*, and neer the *Popinjay*: This is the very *beſt* for *Uſe*, tough and hardy.

4. Theſe choicer ſorts of *Oziers*, which are ever the *ſmalleſt*; alſo the *golden-yellow* and *white* which is preferr'd for propagation and to *breed* of, ſhould be planted of *ſlips* of two, or three years growth, a foot deep, and half a yard length, in *Mooriſh* ground, or *Banks*, or elſe in *Furrows*; ſo as the roots may frequently reach the *water*; for *Fluminibus Salices* —— and at three, or four foot diſtance.

5. The *ſeaſon* for *planting* is in mid-*February*; but *Cattel* being exceſſively licoriſh of their *leaves* and tender *buds*, ſome talk of a *graffing* them out of reach upon *Sallys*, and by *this* to advance their ſprouting; but as the *work* would conſume time, ſo have I never ſeen it ſucceed.

6. Some do alſo plant *Oziers* in their *Eights* like *Quick-ſets*, thick, and (neer the water) keep them not more then half a foot above ground; but then they muſt be diligently cleans'd from

Moſs

Moſs, *Slab* and *Onze*, and frequently *prun'd* (eſpecially the ſmaller ſpires) to form ſingle ſhoots; at leaſt, that few, or none grow double: Theſe they *head* every ſecond year about *September*, the *Autumnal* cuttings being beſt for uſe: But generally

7. You may cut *Withies*, *Sallys*, and *Willows* at any mild and gentle *ſeaſon* between *leaf* and *leaf* even in *Winter*; but the moſt congruous time both to *plant* and to *cut* them is *Creſcente Lunâ Vere*, *circa calendas Martias*; that is, about the new *Moon*, and firſt open weather of the early *Spring*.

8. It is in *France*, upon the *Loire*, where theſe *Eights* (as we call them) and Plantations of *Oziers* and *Withies* are perfectly underſtood; as it ſeems in ſome places alſo of our own *Country*, where I have heard *twenty pounds* has been given for *one Acre*. To omit nothing of the *culture* of this uſeful *Ozier*, *Pliny* would have the place to be prepar'd by *trenching* it a foot and half deep, and in *that* to fix the *ſets* or *cuttings* of the ſame length at ſix foot interval. Theſe (if the ſets be large) will come immediately to be *Trees*; which after the firſt three years are to be abated within two foot of the ground. Then, in *April*, he adviſes to dig about them: Of theſe they formerly made *Vine-props*, and one *Acre* hath been known to yield *props* ſufficient to ſerve a *Vineyard* of twenty five *Acres*. 9.

10. *John Tradeſcan* brought a ſmall *Ozier* from St. *Omers* in *Flanders*, which makes incomparable *Net-works*, not much inferiour to the *Indian* twig or *Bent-works* which we have ſeen; but if we had them in greater abundance, we ſhould haply want the *Artificers* who could imploy them.

Meads Willow.

1. Our common *Willow* of the *woodier* ſort delights in *Meads* and *Ditch-ſides*, rather *dry*, then over *wet* (for ſo they laſt longeſt) and would be planted of *ſtakes* as big as on's *leg*, cut at the length of five or ſix foot, and fix'd a foot or more into the earth; the *hole* made with an *Oaken-ſtake* and *beetle*, or with an *Iron-crow* (ſome uſe a long *Augur*) ſo as not to be forced *in* with too great violence: But firſt, the *Trunchions* ſhould be a little ſlop'd at both extreams, and the biggeſt planted downwards: To this, if they are *ſoak'd* in *water* two or three days (after they have been ſiz'd for *length*, and the twigs cut off ere you plant them) it will be the better. Let this be done in *February*. Arms of four years growth will yield ſubſtantial *ſets* to be planted at eight or ten foot diſtance; and for the firſt three years well defended from the *Cattel*, who infinitely delight in their *leaves*, green or wither'd. Thus a *Willow* may continue *twenty*, or *five* and *twenty years*, with good profit to the induſtrious *Planter*, being *headed* every four or five years, ſome have been known to *ſhoot* no leſs then *twelve foot* in *one* year, after which the old, rotten *Dotards* may be *fell'd*, and eaſily ſupplied. But if you have ground fit for whole *Copſes* of this *Wood*, caſt it into double *dikes*, making every *foſs* neer three foot wide; two and half in depth; then leaving four foot at leaſt of ground for the earth (becauſe in ſuch *Plantations* the moiſture ſhould be below the *roots*, that they may rather ſee, then feel the 2.

water) and two *Tables* of *Sets* on each ſide, plant the *Ridges* of theſe *Banks* with but one ſingle *Table*, longer and bigger then the *Collateral*, *viz.* three, four, five or ſix foot high, and diſtant from
3. each other about two yards. Theſe *Banks* being carefully kept *weeded* for the firſt two years, till the *Plants* have vanquiſh'd the *Graſs*; every *Acre* at eleven, or twelve years growth, may yield you neer an *hundred load* of *wood:* Cut them in the *Spring* for dreſſing; but in the *Fall* for *Timber* and *Fuel:* I have been inform'd, that a *Gentleman* in *Eſſex* has lopp'd no leſs then 2000 *yearly*, all of his own planting.

4. There is a ſort of *Willow* of a ſlender and long leaf, reſembling the ſmaller *Ozier*; but riſing to a Tree as big as the *Sally*; full of *knots*, and of a very brittle *ſpray*, only here *rehears'd* to acknowledge the *variety*.

5. There is likewiſe the *Garden-willow*, which produces a ſweet and beautiful *flower*, fit to be admitted into our *Hortulan* ornaments, and may be ſet for *partitions* of *ſquares*; but they have no affinity with other. There is alſo in *Shropſhire* another very *odoriferous* kind.

6. What moſt of the former enumerated kinds differ from the *Sallys*, is indeed not much conſiderable, they being generally uſeful for the ſame purpoſes; as *Boxes*, ſuch as *Apothecaries* and *Goldſmiths* uſe; for *Cart-Saddle-trees*, *Harrows*, *Shooe-makers Laſts*, *Heels*, *Clogs* for *Pattens*, *Pearches*, *Hop-poles*; *Ricing* of *kidny-beans*, and for *Supporters* to *Vines*, when our *Engliſh Vineyards* come more in requeſt: Alſo for *Hurdles*, *Sieves*, *Lattices*; for the *Turner*, *Coals* and *Bavin*. The *wood* being preſerv'd dry will dure a very long time; but that which is found wholly *putrifi'd*, and reduc'd to a loamy earth in the hollow trunks of *ſuperannuated* Trees, is, of all other, the fitteſt to be mingl'd with fine *mould* for the raiſing our choiceſt *Flowers*, ſuch as *Anemonies*, *Ranunculus's*, *Auriculas*, and the like; for

Quid majora ſequar? Salices, humilesq; geniſtæ
Aut illi pecori frondem, aut paſtoribus umbram
Sufficiunt, ſepemq; ſatis, & pabula melli.

Georg. 2.

7. Now by all theſe *Plantations* of the *Aquatic* Trees, it is evident the *Lords* of Mooriſh *Commons*, and unprofitable *Waſtes*, may learn ſome *improvement*, and the neighbour *Bees* be gratifi'd; and many *Tools* of *Husbandry* become much cheaper. I conclude, with the learned *Stephanus*'s note upon theſe kind of *Trees*, after he has enumerated the univerſal benefit of the *Salictum: Nullius enim tutior reditus, minoriſve impendii, aut tempeſtatis ſecurior.*

CHAP.

CHAP. XX.

Of Fences, Quick-ſets, &c.

1. OUr main *Plantation* is now finiſh'd, and our *Foreſt* adorn'd with a juſt *variety*: But what is yet all this labour, but loſs of *time*, and irreparable *expence*, unleſs our *young*, and (as yet) tender *Plants* be ſufficiently *guarded* from all external *injuries*? for, as old *Tuſſer*, *Fences.*

> If Cattel, or Cony may enter to crop,
> Young Oak is in danger of loſing his top.

But with ſomething a more poliſh'd *ſtile*, though to the ſame purpoſe, the beſt of *Poets*,

> *Texendæ ſepes etiam, & pecus omne tenendum eſt:*
> *Præcipue, dum frons tenera, imprudensq; laborum;*
> *Cui, ſuper indignas hyemes, ſolemq; potentem,*
> *Sylveſtres Viri aſſiduè, capreæq; ſequaces*
> *Illudunt: Paſcuntur Oves, avidæq; juvencæ.*
> *Frigora nec tantum cana concreta pruina,*
> *Aut gravis incumbens ſcopulis arentibus æſtas*
> *Quantum illi nocuere greges, duriq; venenum*
> *Dentis, & admorſa ſignata in ſtirpe cicatrix.*
>
> Georg. 1.

2. For the *reaſon* that ſo many complain of the improſperous condition of their *Wood-lands*, and *Plantations* of this kind, proceeds from this *neglect*; though (*Sheep* excepted) there is no imployment whatſoever incident to the *Farmer*, which requires leſs *expence* to gratifie their expectations: One diligent, and skilful *Man* will govern *five hundred* Acres: But if through any accident a *Beaſt* ſhall break into his *Maſters* field; or the wicked *Hunters* make a gap for his *dogs* and *horſes*, what a clamor is there made for the diſturbance of a years *Crop* at moſt in a little *Corn*? whiles abandoning his young *Woods* all this time, and perhaps many years, to the venomous bitings and treading of *Cattel*, and other like injuries (for want of due care) the detriment is many times *irreparable*: Young *Trees* once cropp'd hardly ever *recovering*: It is the *bane* of all our moſt hopeful *Timber*. But ſhall I provoke you by an *inſtance*? A *Kins-man* of mine has a *Wood* of more then 60 *years* ſtanding; it was, before he purchas'd it, expos'd and abandon'd to the *Cattel* for divers years: ſome of the outward ſkirts were nothing ſave *ſhrubs* and miſerable *ſtarvlings*; yet ſtill the place had a diſpoſition to grow *woody*; but by this neglect continually ſuppreſs'd. The induſtrious *Gentleman* has *Fenced* in ſome *Acres* of this, and cut all cloſe to the ground; it is come in eight or nine years to be better worth then the *wood* of *ſixty*; 3.

and

and will (in time) prove most incomparable *Timber*, whiles the other part so many years advanc'd, shall never recover; and all *this* from no other *cause*, then preserving it *fenc'd*: Judge then by *this*, how our *Woods* come to be so decried: Are five hundred *Sheep* worthy the care of a *Shepherd*? and are not *five thousand* Oaks worth the *Fencing*, and the inspection of a *Hayward*?

Et dubitant homines serere, atq; impendere curam?

Let us therefore *shut* up what we have thus laboriously *planted*, with some good *Quick-set hedge*.

Quick-sets. 1. The *White-thorne* which is the best for *Fencing*, is either rais'd of *Seeds* or *Plants*; but then it must not be with *despair*, because sometimes you do not see them peep the *first* year; for the *Haw*, and many other *seeds*, being invested with a very hard *Integument*, will now and then suffer *imprisonment* two whole years under the earth; and impatience of this does often frustrate the expectation of the *resurrection* of divers *seeds* of this nature; so as we frequently *dig* up, and disturb the *beds* where they have been *sown*, in *despair*, before they have *gone* their *full time*; which is also the reason of a very *popular* mistake in other

2. *seeds*: especially, that of the *Holly*, concerning which there goes a *tradition*, that they will not sprout till they be pass'd through the *Maw* of a *Thrush*; whence the saying, *Turdus exitium suum cacat* (alluding to the *Viscus* made thereof, not the *Misseto* of *Oak*) but this is an *errour*, as I am able to testifie on *experience*; they come up very well of the *Berries*, and *patience*; for (as I affirm'd) they will *sleep* sometimes two entire years in their *Graves*; as will also the seeds of *Yew*, *Sloes*, *Phillyrea angustifolia*, and sundry *others*, whose *shells* are very *hard* about the small *kernels*; but which is wonderfully facilitated, by being (as we directed) prepar'd in *beds*, and *magazines* of *earth* or *sand* for a competent time, and then committed to the ground before the *full* in *March*, by which *season* they will be *chitting*, and speedily take *root*: Others bury them deep in the ground all *Winter*, and sow them in *February*: And thus I have been told of a *Gentleman* who has considerably improv'd his *Revenue*, by sowing *Haws* only, and raising *Nurseries* of *Quick-sets*, which he sells by the *hundred* far and neer: This is a commendable *industry*; any neglected corners of ground will

3. fit this *Plantation*: But *Columella* has another expedient for the raising of our *spinetum*, by rubbing the now mature *Hips* and *Haws* into the crevices of *bass-ropes*, and then burying them in a *trench*: whether way you attempt it, they must (so soon as they peep, and as long as they require it) be sedulously cleans'd of the *weeds*; which, if in beds for *transplantation*, had need be at the least three or four *year*; by which time, even your *seedlings* will be of *stature* fit to *remove*; for I do by no means approve of the vulgar *præmature* planting of *sets*, as is generally us'd throughout *England*; which is to take such only as are the very *smallest*, and so to crowd them into three or four *files*, which are both egregious *mistakes*.

4. Where-

4. Whereas it is found by conſtant experience, that *plants* as big as ones *thumb*, ſet in the poſture, and at the diſtance which we ſpake of in the *Horn-beam*; that is, almoſt *perpendicular*, and ſingle, or at moſt not exceeding a double *row*, do proſper infinitely, and much out-ſtrip the denſeſt, and cloſeſt ranges of our trifling *Sets*, which make but weak *ſhoots*, and whoſe roots do but hinder each other, and for being couch'd in that *poſture* on the ſides of *Banks* and *Fences* (eſpecially where the earth is not very tenacious) are bared of the *mould* which ſhould entertain them, by that time the *Rains* and *Storms* of one *Winter* have paſſed over them. In *Holland*, and *Flanders* (where they have the goodlieſt *Hedges* of this kind about the *Counter-ſcarps* of their invincible *Fortifications*, to the great ſecurity of their *Muſketiers* upon occaſion) they plant them according to my deſcription, and raiſe *Fences* ſo ſpeedily, and ſo impenetrable, that our *beſt* are not to enter into the compariſon.

6. Your *Hedge* being yet *young*, ſhould be conſtantly *weeded*, though ſome admit not of this work after *Michaelmas*, for *Reaſons* that I approve not: It has been the practice of *Herefordſhire*, in the plantation of *Quick-ſet-hedges*, to plant a *Crab-ſtock* at every twenty foot diſtance; and this they obſerve ſo *Religiouſly*, as if they had been under ſome rigorous *Statute* requiring it: But by this means they were provided in a ſhort time with all advantages for the *graffing* of *Fruit* amongſt them, which does highly recompenſe their induſtry.

7. When your *Hedge* is now about ſix years ſtature, *plaſh* it about *February* or *October*; but this is the work of a very dextrous and skilful *Husbandman*; and for which our honeſt Country-man M. *Markam* gives excellent directions; only I approve not ſo well of his *deep* cutting, if it be poſſible to bend it, having ſuffered in ſome thing of that kind: It is almoſt incredible to what perfection ſome have laid theſe *Hedges*, by the *rural* way of *plaſhing*, better then by *clipping*; yet may both be uſed for *ornament*, as where they are planted about our *Garden-fences*, and *fields* neer the *Manſion*. In *Scotland* by tying the young *ſhoots* with *bands* of *hay*, they make the *ſtems* grow ſo very cloſe together, as that it encloſeth *Rabbets* in *Warrens* inſtead of *pales*.

8. And now ſince I did mention it, and that moſt I find do greatly affect the ordinary way of *Quicking* (that this our *Diſcourſe* be in nothing deficient) we will in brief give it you much after *Geo. Markams* deſcription, becauſe it is the beſt and moſt accurate.

In a Ground which is more *dry* then *wet* (for *watry* places it abhors) plant your *Quick* thus: Let the firſt row of *Sets* be placed in a *trench* of about half a foot deep, even with the top of your *ditch*, in ſomewhat a ſloping, or inclining poſture: Then having rais'd your *bank* neer a foot upon them, plant another *row*, ſo as their tops may juſt peep out over the middle of the *ſpaces* of your *firſt* row: Theſe cover'd again to the height or thickneſs of the other, place a third *rank* oppoſite to the *firſt*, and then finiſh your

your bank to its intended height. The diſtances of the *plants* would not be above one *foot*; and the *ſeaſon* to do the work in may be from the entry of *February* till the end of *March*; or elſe in *September*, to the beginning of *December*.

When this is finiſh'd, you muſt guard both the top of your *Bank* and outmoſt verge of your Ditch with a ſufficient *dry-hedge*, interwoven from *ſtake* to *ſtake* into the earth (which commonly they do on the bank) to ſecure your *Quick* from the ſpoil of *Cattle*. And then being careful to repair ſuch as decay, or do not ſpring, by ſuppling the dead, and trimming the reſt; you ſhall after three *years* growth ſprinkle ſome *Timber-trees* amongſt them; ſuch as *Oak*, *Beech*, *Aſh*, *Maple*, *Fruit*, or the like; which being drawn young out of your *Nurſeries*, may be very eaſily inſerted.

But that which we affirm'd to require the greateſt dexterity in this work, is the artificial *plaſhing* of our *Hedge* when it is now arriv'd to a *ſix* or *ſeven* years head.

In *February* therefore, or *October*, with a very ſharp *Bill* cut away all ſuperfluous *ſprays* and *ſtraglers* which may hinder your progreſs, and are uſeleſs. Then ſearching out the principal *ſtems*, with a keen and light *Hatchet* cut them *ſlant-wiſe* about three quarters through, and ſo lay it from you *ſloping* as you go, folding *in* the leſſer *branches* which ſpring from them; and ever within a five, or ſix foot diſtance, where you find an upright *ſet* (cutting *off* only the *top* to the height of your intended *hedge*) let it ſtand as a *ſtake* to fortifie your work, and to receive the *twinings* of thoſe branches about it. Laſtly, at the *top* (which would be about *five foot* above ground) take the longeſt, moſt ſlender and flexible *twigs* which you reſerved (and being cut as the former where need requires) bind *in* the extremities of all the reſt, and thus your *work* is finiſh'd: This being done very cloſe, and thick, makes an impregnable *Hedge*, in few years; for it may be repeated as you ſee occaſion; and what you ſo cut away will help to make your *dry-hedges* for your young *Plantations*, or be profitable for the *Oven*, and make good *Bavin*.

9. The *Pyracanth*, *Paliurus*, and like pretioſer ſorts of *Thorne* might eaſily be propagated into plenty ſufficient to ſtore even theſe vulgar *Uſes* were *Men* induſtrious; and then how beautiful, and ſweet would the *environs* of our *Fields* be? for there are none of the *ſpinous ſhrubs* more hardy, nor fitter for our defence. Thus might *Berberies* now and then be alſo inſerted among our *hedges*, which with the *Hips*, *Haws*, and *Cornel-berries*, do well in *light lands*, and would rather be planted to the *South* then North, or *Weſt*, as uſually we obſerve them.

10. Some mingle their very *hedges* with *Oaklings*, *Aſh*, and *Fruit-trees* ſown, or planted, and 'tis a laudable improvement.

11. In *Cornwall* they ſecure their *Lands* and Woods with high *Mounds*, and on them they plant *Acorns* whoſe roots bind in the looſer mould, and ſo form a double, and moſt durable *Fence*, incircling the *Fields* with a *Coronet* of *Trees*. They do likewiſe (and

(and that with great commendation) make *hedges* of our *Geniſta Spinoſa*, prickly *Furzes*, of which they have a *taller* ſort, ſuch as the *French* imploy for the ſame purpoſe in *Brittaign*; where they are incomparable *husbands*. *Furzes.*

13. It is to be *ſown* (which is beſt) or *planted* of the *roots* in a furrow: If ſown, *weeded* till it be ſtrong: both *Tonſile*, and to be diligently *clip'd*, which will render it very thick, an excellent and beautiful *hedge:* Otherwiſe permitted to grow at large, 'twill yield very good *Fagot*.

14. Thus, in ſome places, they *ſow* in *barren grounds* (when they lay them down) the laſt *crop* with this *ſeed*, and ſo let them remain till they break them up again, and during that interim, reap conſiderable advantage: Would you believe (writes a worthy *Correſpondent* of mine) that in *Herefordſhire* (famous for plenty of *wood*) their *Thickets* of *Furzes* (*viz.* the *vulgar*) ſhould yield them more *profit*, then a like quantity of the beſt *Wheat* land of *England?* for ſuch is theirs; and in *Devonſhire* (the *ſeat* of the beſt *Husbands* in the *World*) they ſow on their worſt *Land* (well *plow'd*) the *ſeeds* of the rankeſt *Furzes*, which in four or five years becomes a rich *Wood:* No provender makes *horſes* ſo hardy, as the young *tops* of theſe *Furzes*; no other *Wood* ſo thick, nor more excellent *Fuel*; and for ſome purpoſes alſo, yielding them a kind of *Timber* to their more humble *buildings*, and a great refuge for *Fowl* and other *Game:* I am aſſur'd, in *Brittaign* 'tis ſometimes ſown no leſs then *twelve yards* thick, for a ſpeedy, profitable, and impenetrable *Mound:* If we imitated this *husbandry* in the barren places of *Surrey*, and other parts of this *Nation*, we might exceedingly ſpare our *woods*; and I have bought the beſt ſort of *French ſeed* at the ſhops in *London*.

15. This puts me in mind of the *Broom*; another *improvement* for *Barren* grounds, and ſaver of more ſubſtantial *Fuel:* It may be ſown *Engliſh*, or (what is more ſweet, and beautiful) the *Spaniſh*, with equal ſucceſs. *Broom.*

16. In the Weſtern parts of *France*, and *Cornwall*, it grows with us, to an incredible height (however our *Poet* give it the *epithete* of *humilis*) and ſo it ſeems they had it of old, as appears by *Gratius* his *Geniſtæ Altinates*, with which (as he affirms) they us'd to make *ſtaves* for their *Spears*, and hunting *Darts*.

17. Laſtly, a conſiderable *Fence* may be made of the *Elder*, ſet of reaſonable luſty *trunchions*; much like the *Willow*, and (as I have ſeen them maintain'd) *laid* with great curioſity, and far excelling thoſe extravagant plantations of them about *London*, where the *lops* are permitted to grow without due and ſkilful laying. *Elder.*

18. There is a ſort of *Elder* which has hardly any *Pith*; this makes exceeding ſtout *Fences*, and the *Timber* very uſeful for *Cogs* of *Mills*, and ſuch tough employments.

19. The *American Yucca* is a *harder* plant then we take it to be; for it will ſuffer our ſharpeſt *Winter*, as I have ſeen by experience, without that trouble, and care of ſetting it in *Caſes* in our *Conſervatories* for *hyemation*; ſuch as have beheld it in *Flower* (which is not indeed till it be of ſome age) muſt needs admire the beauty

of it; and it being eaſily multiplied, why ſhould it not make one of the beſt and moſt ornamental *Fences* in the world for our *Gardens*, with its natural *paliſados*, as well as the more tender, and impatient of moiſture the *Aloes* does for their *Vineyards* in *Languedoc*, *&c.* but *We* believe nothing *improvable*, ſave what our *Grand-fathers* taught us.

And thus, having accompliſh'd what (by your *Commands*) I had to offer concerning the *propagation* of the more *Solid*, *Material*, and uſeful *Trees*, as well the *Dry*, as *Aquatical*; and to the beſt of my *talent* fenc'd our *Plantation* in, I ſhould here *conclude*, and ſet a *Bound* likewiſe to my *Diſcourſe*, by making an *Apologie* for the many *errours* and impertinencies of it; did not the *zeal*, and ambition of this *Illuſtrious Society* to promote and improve all *Attempts* which may concern the *Publick utility* or *Ornament*, perſwade *Me*, that what I am adding for the farther encouragement to the *planting* of ſome other *uſeful* (though leſs *Vulgar*) Trees, will at leaſt obtain your *pardon*, if it miſs of your *Approbation*.

Fruit-Trees. 1. To diſcourſe in this *ſtile* of all ſuch *Fruit-trees* as would prove of greateſt *emolument* to the whole *Nation*, were to deſign a juſt *Volume*; and there are *directions* already ſo many, and ſo accurately deliver'd and *publiſh'd* (but which cannot be affirm'd of any of the former *Claſſes* of *Foreſt-trees* and other remarkes, at the leaſt to my poor knowledge and reſearch) that it would be needleſs to *Repeat*.

2. I do only wiſh (upon the proſpect, and meditation of the univerſal *Benefit*) that every *perſon* whatſoever, worth *ten* pounds *per annum*, within his *Majeſties* Dominions, were by ſome indiſpenſable *Statute* oblig'd to *plant* his *Hedge-rows* with the beſt and moſt uſeful *kinds* of them; eſpecially, in ſuch places of the *Nation*, as being the more in-land *Counties*, and remote from the *Seas* and Navigable *Rivers*, might the better be excus'd from the planting of *Timber*, to the *proportion* of thoſe who are more happily and commodiouſly *ſituated* for the *tranſportation* of it.

3. Undoubtedly, if this courſe were taken effectually, a very *conſiderable* part both of the *Meat* and *Drink* which is ſpent to our prejudice might be ſaved by the *Countrey-people*, even out of the *Hedges* and *Mounds*, which would afford them not only the *pleaſure* and *profit* of their delicious *Fruit*, but ſuch abundance of *Cider* and *Perry* as ſhould ſuffice them to *drink*, of one of the moſt *wholeſom* and excellent *Beverages* in the *World*. Old *Gerard* did long ſince alledg us an *example* worthy to be purſu'd; *I have ſeen* (ſaith he, ſpeaking of *Apple-Trees*, *lib.*3. *cap.*101.) *in the* Paſtures *and* Hedgrows *about the Grounds of a Worſhipful* Gentleman *dwelling two miles from* Hereford, *called Mr* Roger Bodnome, *ſo many* Trees *of all* ſorts *that the* Servants *drink for the moſt part no other drink but that which is made of* Apples: *The quantity is ſuch, that by the report of the* Gentleman *himſelf the* Parſon *hath for* Tythe *many Hogſheads of* Cider: *The* Hogs *are fed with the fallings of them, which are ſo many that they make choice of thoſe* Apples *they do eat, who will not taſte of any but of the beſt. An* Example *doubtleſs to be followed*

followed of Gentlemen *that have* Land *and* Living; *but* Envy *ſaith, The* Poor *will break down our* Hedges, *and we ſhall have the leaſt part of the* Fruit; *but forward in the Name of God,* Graff, Set, Plant, *and nouriſh up* Trees *in every corner of your Ground; the* labour *is ſmall, the* coſt *is nothing, the* commodity *is great; your ſelves ſhall have* plenty, *the* poor *ſhall have ſomewhat in time of want to relieve their neceſſity, and* God *ſhall reward your good minds and diligence.* Thus far honeſt *Gerard.* And in truth with how ſmall a *charge* and infinite *pleaſure* this were to be effected, every one that is *Patron* of a little *Nurſery* can eaſily *calculate:* But by this *Expedient*, many thouſands of *Acres*, ſow'd now yearly with *Barley*, might be cultivated for *Wheat*, or converted into *Paſture* to the increaſe of *Corn*, and *Cattel:* Beſides the *Timber* which the *Pear-tree* affords, comparable (for divers curious *Uſes*) with any we have enumerated. But of this I am to render a more ample *Accompt* in the *Appendix* to this *Diſcourſe*.

4. I would farther recommend the more frequent planting and propagation of *Fir*, *Pine-trees* and ſome other beneficial *Materials* both for *Ornament* and *profit*; eſpecially, ſince we find by *experience*, they thrive ſo well, where they are cultivated for *Curioſity* only.

CHAP. XXI.

Of the Fir, Pine, Pinaſter, Pitch-tree, *&c.*

1. THey are all of them eaſily rais'd of the *Kernels*, and *Nuts*, which may be gotten out of their *Cones* and *Clogs*, by expoſing them a little before the *fire* till they begin to gape, and are ready to deliver themſelves of their burthen. *Fir.*

2. There are of the *Fir* two principal *ſpecies*; the *Male* which is the bigger Tree, and of a harder wood; the *Female*, which is much the ſofter, and whiter. They may be ſown in *beds*, or *caſes*, at any time during *March*; and when they *peep*, carefully defended with *Furzes*, or the like fence from the rapacious *Birds*, which are very apt to pull them up, by taking hold of that little *infecund* part of the *ſeed* which they commonly bear upon their tops: The *Beds* wherein you ſow them had need be ſhelter'd from the Southern *Aſpects* with ſome *skreen* of *Reed*, or thick *hedge:* Sow them in ſhallow *rills*, not above half-inch-deep, and cover them with fine light mould: Being riſen a finger in height, eſtabliſh their weak *ſtalks*, by ſiefting ſome more earth about them; eſpecially the *Pines*, which being more *top-heavy* are more apt to ſwag. When they are of two, or three years growth, you may *tranſplant* them where you pleaſe; and when they have gotten good root they will make prodigious ſhoots; but not for the three or four firſt years comparatively.

Pines.

3. The *Pine* is likewise of both *Sexes*, whereof the *Male* growing lower, hath its *wood* more knotty and rude then the *Female*. They would be gather'd in *June* before they gape, and cultivated like the *Fir* in most respects; only, you may bury the *Nuts* a little deeper. By a *friend* of mine they were rolled in a fine *compost* made of *Sheeps-dung*, and scatter'd in *February*, and this way never fail'd; *Fir* and *Pine*; they came to be above *Inch* high by *May:* this were an expeditious *process* for great *Plantations:* unless you would rather set the *Pine* as they do *Pease*; but at wider distances, that when there is occasion of removal, they might be taken up with earth and all; because they are (of all other *Trees*) the most obnoxious to miscarry without this caution; and therefore it were much better (where the *Nuts* might be commodiously set, and *defended*) never to *remove* them at all, it gives this *Tree* so considerable a check.

4. I am assur'd (by a person most worthy of credit) that in the *Territory* of *Alzey* (a Country in *Germany*, where they were miserably distressed for *Wood*, which they had so destroy'd as that they were reduced to make use of *Straw* for their best *Fuel*) a very large *Tract* being newly plowed, but the *Wars* surprizing them, not suffer'd to sow, there sprung up the next year a whole Forest of *Pine-trees*, of which sort of *Wood* there was none at all within less then *fourscore* miles; so as 'tis verily conjectur'd by some, they might be wafted thither from the Country of *Westrasia*, which is the neerest part to that where they grow: If this be true, we are no more to wonder, how, when our *Oak-woods* are grubb'd up, *Beech* and Trees of *other kinds* have frequently succeeded them: What some impetuous *Winds* have done in this nature I could produce instances almost *miraculous:* I shall say nothing of the opinion of our Master *Varro*, and the learned *Theophrastus*, who were both of a faith that the *seeds* of *Plants* drop'd out of the *Air*: *Pliny* in his 16. *Book*, *Chap.* 33. upon discourse of the *Cretan Cypress*, attributes much to the *indoles* and nature of the *soil*, *virtue* of the *Climate*, and *Impressions* of the *Air:* And indeed it is very strange what is affirm'd of that *Pitchy-rain*, reported to have fallen about *Cyrene*, the year 430. U. C. after which, in a short time sprung up a whole wood of the Trees of *Laserpitium*, producing a precious *Gum* not much inferiour to *Benzoin*, if at least the *story* be warrantble: But of these *Aerial irradiations*, various *conceptions* and *æquivocal* productions without *seed*, *&c.* upon another occasion, if life and leisure permit me to finish what has been long under the hand and file to gratifie our *Horticultores*; this present *Treatise* being but an imperfect *limb* of that more ample *Work*.

5. In transplanting of these *Resinaceous*, and *Coniferous* Trees, you must never diminish their *heads*, nor be at all busie with their *roots*, which pierce deep, and is all their foundation, unless you find any of them bruised, or much broken: Neither may you *disbranch* them, but with great caution, as about *March* or before, or else in *September*, when I advise you to rub over their *wounds*

wounds with a mixture of *Cow-dung*; the neglect of this coſt me dear, ſo apt are they to ſpend their *Gum*.

6. Some adviſe us to *break* the ſhells of *Pines* to facilitate their *delivery*, and I have eſſay'd it; but to my loſs; *Nature* does *obſtetricate*, and do that office of her ſelf when it is the beſt ſeaſon; neither does this preparation at all prevent thoſe which are ſo buried, whiles their hard *Integuments* protect them both from *rotting*, and the *Vermine*.

7. The *domeſtic Pine* grows very well with us; but the *Pinaſter* or wilder beſt for *Walks*, becauſe it grows tall, and proud, maintaining their branches at the ſides, which the *Pine* does leſs frequently. *Pinaſter.*

8. The *Fir* grows talleſt being planted reaſonable cloſe together; but ſuffers nothing to *thrive* under them. The *Pine* not ſo *Inhoſpitable*; for (by *Plinies* good leave) it may be ſown with any Tree, all things growing well under its *ſhade*, and excellent in *Woods*, hence *Claudian*,

Et comitem quercum Pinus amica trahit.

9. They both affect the *cold*, *high* and *rockie* grounds; yet will grow in better; but not in over rich, and *pinguid*. The worſt land in *Wales* bears (as I am told) large *Pine*; and the *Fir* according to his aſpiring nature, loves alſo the *Mountain* more then the *Valley*; though they will alſo deſcend, and ſucceed very well in either; being deſirous of plentiful *waterings* till they arrive to ſome competent *ſtature*; and therefore they do not proſper ſo well in an over *ſandy*, and *hungry* ſoil, or *gravel*, as in the very entrails of the *Rocks*, which afford more *drink* to the *Roots*, that penetrate into their *meanders*, and winding receſſes. But though they require this *refreſhing* at firſt; yet do they perfectly abhor all *ſtercoration*; nor will they much endure to have the earth open'd about their roots for *Ablaqueation*, or be diſturb'd. This is alſo to be underſtood of *Cypreſs*. A *Fir* for the firſt half dozen years ſeems to ſtand, or at leaſt make no conſiderable advance; but it is when throughly rooted, that it comes away miraculouſly. That Honourable Knight Sir *Norton Knatchbull* (whoſe delicious *Plantation* of *Pines*, and *Firs* I beheld with great ſatisfaction) having aſſur'd me that a *Fir-tree* of his raiſing, did ſhoot no leſs then 60 foot in *height* in little more then *twenty* years, is a pregnant inſtance, as of the ſpeedy growing of that *material*; ſo of all the encouragement I have already given for the more frequent cultivating this ornamental, uſeful and profitable Tree.

10. The *Picea* is another ſort of *Pine*, and to be cultivated like it *Pitch.*

——*Piceæ tantum, taxiq; nocentes*
Interdum, aut ederæ pandunt Veſtigia nigræ.
Georg. 2.

to ſhew in what unprofitable *ſoils* they grow; And therefore I am

am not ſatisfied why it might not proſper in ſome tolerable degree in *England*, as well as in *Germany*, *Ruſſia*, the colder *Tracts*, and abundantly in *France* : It grows on the *Alpes* among the *Pine*; but neither ſo tall nor ſo upright.

11. There is alſo the *Piceaſter*, out of which the greateſt ſtore of *Pitch* is boyl'd. The *Teda* likewiſe, which is a ſort more unctuous, and more patient of the warmer ſcituations.

12. The *Bodies* of theſe being cut, or burnt down to the ground, will emit frequent *ſuckers* from the Roots; but *ſo* will neither the *Pine* nor *Fir*.

13. That all theſe, eſpecially the *Fir*, and *Pine*, will proſper well with us is more then probable, becauſe it is a kind of *Demonſtration* that they did heretofore grow plentifully in *Cumberland*, *Cheſhire*, *Stafford*, and *Lancaſhire*, where multitudes of them are to this day found intire, *buried* under the *Earth*, though ſuppos'd to have been o'rethrown and cover'd ſo ever ſince the univerſal *Deluge*: For we will not here trouble our *Planter* with M. *Cambden's Quærie*, *Whether there be not* ſubterraneous Trees *growing under the ground?* though ſomething to be touched anon might ſeem to excuſe the preſumption of it; beſides that divers *Earths*, as well as *Waters*, have evidently a quality of *petrifying wood* buried therein.

14. In *Scotland* there is a moſt beautiful ſort of *Fir* growing upon the *Mountains*; of which from that unhappy *Perſon* the late *Marqueſs* of *Argyle* I had ſent me ſome ſeeds, which I have ſown with tolerable ſucceſs.

15. For the many and almoſt univerſal uſe of theſe *Trees* both *Sea*, and *Land* will plead,

——dant utile Lignum
Navigiis Pinos----------

They make our beſt *Maſt*, *Sheathing*, &c. heretofore the whole *Veſſel*. *It is pretty* (ſaith *Pliny*) *to conſider that thoſe Trees which are ſo much ſought after for* Shipping *ſhould moſt delight in the higheſt of* Mountains, *as if it fled from the* Sea *on purpoſe, and were afraid to deſcend into the* Waters. With *Fir* we likewiſe make *Wainſcot*, *Floors*, *Laths*, *Boxes*, and wherever we uſe the *Deal*; nor does there any *Wood* ſo well agree with the glew as it, or ſo eaſie to be wrought : It is alſo excellent for *Beams*, and other *Timber-work* in *Houſes*, being both light, and exceedingly ſtrong, where it may lie dry *everlaſting*, and an extraordinary ſaver of *Oak* where it may be had at reaſonable *price*. I will not complain what an incredible maſs of ready *Money* is yearly exported into the *Northern Countrys* for this ſole commodity, which might all be ſaved were we *induſtrious* at *home*. Likewiſe from *Fir* we have the moſt of our *Pot-aſhes*.

The *Pine*, and *Picea* buried in the earth never decay : From the latter *tranſudes* a very bright and pellucid *Gum*; hence we have likewiſe *Roſin*; alſo of the *Pine* are made *Boxes*, and *Barrels* for

dry

dry Goods; yea, and it is cloven into *ſhingles* for the covering of houſes in ſome places; not to forget the *kernels*, of ſuch admirable uſe in *Emulſions*: In ſum, they are *Plantations* which exceedingly improve the *Air* by their *odoriferous* and *balſamical* emiſſions, and for ornament create a *perpetual ſpring* where they are propagated.

16. But now whiles I am reciting the *Uſes* of theſe beneficial Trees, Mr. *Winthorp* preſents the *Royal Society* with the *Proceſs* of making the *Tar* and *Pitch* in *New England*, which we thus abbreviate.

Tar is made out of that ſort of *Pine-tree* from which naturally *Terpentine* extilleth; and which at its firſt flowing out is liquid and clear; but being hardned by the *air*, either on the *Tree*, or where-ever it falls, is not much unlike the *Burgundy Pitch*; and we call them *Pitch-pines* out of which this *gummy* ſubſtance tranſudes: They grow upon the moſt barren *plains*, on *rocks* alſo and *hills* riſing amongſt thoſe *plains*, where ſeveral are found blown down, that have lain ſo many *ages* as that the whole bodies, branches and roots of the Trees being periſhed, ſome certain *knots* only of the boughs have been left remaining intire (theſe *knots* are that part where the *bough* is joyn'd to the *body* of the *Tree*) lying at the ſame diſtance and poſture as they grew upon the *Tree* for its whole length. The bodies of ſome of theſe *Trees* are not corrupted through age, but quite conſum'd and reduc'd to aſhes by the annual *burnings* of the *Indians*, when they ſet their grounds on *fire*; which yet has, it ſeems, no power over theſe hard *knots* beyond a black ſcorching; although being laid on heaps they are apt enough to burn.

It is of theſe *knots* they make their *Tar* in *New England* and the *Country* adjacent, whiles they are well impregnated with that *Terebinthine*, and *Reſinous* matter, which like a *Balſam* preſerves them ſo long from *putrifaction*. The reſt of the *Tree* does indeed contain the like *Terebinthine ſap*, as appears (upon any ſlight inciſion of *bark* on the ſtem, or boughs) by a ſmall cryſtaline pearl which will ſweat out; but *this*, for being more watry, and undigeſted by reaſon of the *poroſity* of the wood, which expoſes it to the impreſſions of the *air* and *wet*, renders the Tree more obnoxious; eſpecially, if it lye proſtrate with the *bark* on, which is a receptacle for a certain *intercutaneous* worm that accelerates its decay. They are the *knots* then alone which the *Tar-makers* amaſs in *heaps*, carrying them in *Carts* to ſome convenient place not far off, where finding *clay* or *loam* fit for their turn, they lay an *Hearth* of ſuch ordinary ſtone as they have at hand: This they build to ſuch an height from the level of the ground, that a *Veſſel* may ſtand a little lower then the *Hearth* to receive the *Tar* as it runs out: But firſt, the *Hearth* is made wide according to the quantity of *knots* to be ſet at once, and that with a very ſmooth *floore* of *clay*, yet ſomewhat deſcending or dipping from the extream parts to the *middle*, and thence towards one of the *ſides*, where a *gullet* is left for the *Tar* to run out at. The *Hearth* thus

finiſh'd, they pile the *knots* one upon another, after the very ſame manner as our *Colliers* do their *wood* for *Char-coal*; and of a height proportionable to the breadth of the *Hearth*; and then cover them over with a coat of *loam* or *clay* (which is beſt) or in defect of thoſe, with the beſt, and moſt tenacious *earth* the place will afford; leaving only a ſmall *ſpiracle* at the top whereat to put the *fire* in; and making ſome little *holes* round about at ſeveral heights, for the admiſſion of ſo much *air* as is requiſite to keep it burning, and to regulate the *fire* by opening, and ſtopping them at pleaſure. The *proceſs* is almoſt the ſame with that of making *Char-coal*, as will appear in due place; for when it is well on *fire*, that middle *hole* is alſo ſtopp'd, and the reſt of the *Regiſters* ſo govern'd as the *knots* may *keep* burning and not be ſuffocated with too much *ſmoak*, whiles all being now through-heated, the *Tar* runs down to the *Hearth* together with ſome of the more watry *ſap*, which haſting from all *parts* towards the *middle* is convey'd by the foremention'd *gutter* into the *Barrel*, or *Veſſel* placed to receive it: Thus the whole *Art* of *Tar-making* is no other then a kind of rude diſtillation *per deſcenſum*, and might therefore be as well done in *Furnaces* of large capacity, were it worth the expence. When the *Tar* is now all melted out, and run, they ſtop up all the *vents* very cloſe; and afterwards find the *knots* made into excellent *Char-coal* preferr'd by the *Smiths* before any other whatſoever which is made of wood; and nothing ſo apt to burn *out* when their *blaſt* ceaſeth; neither do they *ſparkle* in the *fire* as many other ſorts of *Coal* do; ſo as, in defect of *Sea-coal*, they make choice of *this* as beſt for their uſe, and give greater *prices* for it.

Of theſe *knots* likewiſe do the *Planters* ſplit out ſmall *ſlivers* about the thickneſs of one's *finger*, or ſomewhat thinner, which ſerve them to burn in ſtead of *Candles*; giving a very good light. This they call *Candle-wood*, and it is in much uſe both in *New England*, *Virginia*, and amongſt the *Dutch-planters* in their *Villages*; but for that it is ſomething offenſive by reaſon of the much fuliginous *ſmoak* which comes from it, they commonly burn it in the *chimney-corner* upon a flat *ſtone*, or *Iron*; except, occaſionally, they carry a ſingle *ſtick* in their hand, as there is need of light to go about the houſe.

It muſt not be conceiv'd, by what we have mention'd in the former deſcription of the *knots*, that they are only to be ſeparated from the *bodies* of the *trees* by devouring *time*; or that they are the only *materials* out of which *Tar* can be extracted: For there are in theſe *Tracts* millions of *Trees* which abound with the ſame ſort of *knots*, and full of *Terpentine* fit to make *Tar*: But the labour of *felling* theſe *Trees*, and of *cutting* out their *knots*, would far exceed the value of the *Tar*; eſpecially in *Countries* where *Workmen* are ſo very dear: But thoſe *knots*, above mention'd, are provided to hand, without any other labour then the gathering only.

There are ſometimes found of thoſe ſort of *Pine-trees* the

loweſt

loweſt part of whoſe ſtems towards the *root* is as full of *Terpentine* as the *knots*; and of theſe alſo may *Tar* be made: but ſuch *Trees* being rarely found, are commonly preſerved to ſplit into *Candle-wood*; becauſe they will be eaſily *riven* out into any lengths, and ſcantlings deſir'd, much better then the *knots*.

There be who pretend an *art* of as fully *impregnating* the body of any living *Pine-tree* for ſix or eight foot high: and ſome have reported that ſuch an *art* is practis'd in *Norway*: But upon ſeveral *experiments* by *girdling* the *Tree* (as they call it) and cutting ſome of the *bark* round, and a little *into* the *wood* of the *Tree*, ſix or eight foot diſtant from the ground, it has yet never ſucceeded; whether the juſt *ſeaſon* of the year were not obſerv'd, or what elſe omitted, were worth the *diſquiſition*; if at leaſt there be any ſuch *ſecret* amongſt the *Norwegians*, *Swedes*, or any other *Nation*.

Of *Tar*, by boiling it to a ſufficient *height*, is *Pitch* made: and in ſome places where *Roſin* is plentiful, a fit proportion of that may be diſſolved in the *Tar* whiles it is boiling, and this *mixture* is ſooneſt converted to *Pitch*; but it is of ſomewhat a differing *kind* from that which is made of *Tar* only, without other compoſition.

There is a way which ſome *Ship-Carpenters* in thoſe Countries have us'd to bring their *Tar* into *Pitch* for any ſudden uſe; by making the *Tar* ſo very hot in an *Iron-kettle*, that it will eaſily take *fire*, which when *blazing* and ſet in an *airy* place, they let burn ſo long, till, by taking out ſome ſmall quantity for trial, being *cold*, it appears of a ſufficient *conſiſtence*: Then by covering the *Kettle* cloſe, the *fire* is extinguiſh'd, and the *Pitch* is made without more ceremony.

There is a *proceſs* of making *Roſin* alſo out of the ſame *knots*, by ſplitting them out into thin pieces, and then boiling them in *water*, which will educe all the *Reſinous* matter, and gather it into a *body* which (when cold) will harden into pure *Roſin*.

CHAP. XXII.

Of the Larch, Platanus, Lotus, *&c.*

1. BUt why might we not hope as well of the *Larch* from whence that uſeful drogue *Agaric* is gather'd? I reade of *Beams* of no leſs then 120 foot in length made out of this goodly Tree which is of ſo ſtrange a compoſition that 'twill hardly burn, as *Cæſar* found in a *Caſtle* he beſieg'd built of it: yet the *Coals* thereof were held far better then any other for the melting of *Iron*. That which now grows ſome where about *Chelnsford* in *Eſſex*, arriv'd to a flouriſhing, and ample *Tree*, does ſufficiently reproach our negligence and want of *induſtry*, as well as the incomparable and ſhady *Platanus*, *that* ſo beautiful and preci- *Larch.*

ous *Tree* which we reade the *Romans* brought out of the *Levant*, and cultivated with ſo much induſtry and coſt, for its ſtately and proud head only; that they would *irrigate* them with *Wine* in ſtead of *Water*; and ſo priz'd the very *ſhadow* of it, that when afterwards they tranſplanted them into *France*, they exacted a *Tribute* of any of the *Natives* who ſhould preſume but to put his *head* under it. *Pliny* tells us there is no *Tree* whatſoever which ſo well defends us from the *heat* of the *Sun* in *Summer*; nor that admits it more kindly in *Winter*.

Platanus. 1. There was lately at *Baſil* in *Switzerland* an ancient goodly *Platanetum:* and they may with us be rais'd of their *ſeeds* with care, in a moiſt ſoil, as here I have known them: But the reaſon of our little ſucceſs is, that we very rarely have them ſent us *ripe*; which ſhould be gather'd *late* in *Autumn*, and brought us from ſome more *Levantine* parts then *Italy*.

2. They come alſo of *Layers* abundantly; affecting a freſh and feeding ground; for ſo they plant them about their *Rivulets*, and *Fountains*.

Lotus. 1. The ſame opinion have I of the noble *Lotus*, which in *Italy* yields both an admirable *ſhade*, and *Timber* immortal.

2. The offer of *Craſſus* to *Domitius* for half a dozen of theſe Trees growing about an houſe of his in *Rome*, teſtifies in what eſteem they were had for their incomparable beauty and uſe.

CHAP. XXIII.

Of the Cypreſs-tree, *and* Cedar.

Cypreſs. 1. IF we ſhould reaſon only from our common *experience*, even the *Cypreſs-tree* was, but within a few years paſt, reputed ſo tender, and nice a *Plant*, that it was cultivated with the greateſt care, and to be found only amongſt the *Curious*; whereas we ſee it now, in every *Garden*, riſing to as goodly a bulk and ſtature, as moſt which you ſhall find even in *Italy* it ſelf; for ſuch I remember to have once ſeen in his late *Majeſties Gardens* at *Theobalds*, before that *Princely* ſeat was demoliſh'd. I ſay, if we did argue from this *Topic:* Methinks it ſhould rather encourage our *Countrymen* to add yet to their *Plantations* other *Forreign* and *uſeful* Trees, and not in the leaſt deter them, becauſe many of them are not as yet become *endenizon'd* amongſt us.

2. We may read that the *Peach* was at firſt accounted ſo tender and delicate a *Tree*, as that it was believ'd to thrive only in *Perſia*; and even in the days of *Galen* it grew no nearer then *Egypt*, of all the *Roman* Provinces, but was not ſeen in the *City* till more then *thirty* years before *Pliny*'s time; whereas there is now hardly a more common and univerſal in *Europe:* Thus likewiſe the *Avellana* from *Pontus* in *Aſia*; Thence into *Greece*, and ſo *Italy*, to the City of *Abellino* in *Campania*.

Una

Una tantùm litera immutata, Avellina *dici, quæ prius* Abellina.

I might affirm the ſame of our *Damaſco* Plum, *Quince*, *Medlar*, *Figue*, and moſt ordinary *Pears*, as well as of ſeveral other *Peregrine* Trees, *Fruit-bearers*, and *others*. It was 680 years after the foundation of *Rome* ere *Italy* had taſted a *Cherry* of their own, which being then brought thither out of *Pontus* (as the above-mention'd *Filberts* were) did afterwards travel *ad ultimos Britannos*.

3. *Joſephus* tells us, *That the* Cedar *in* Judea *was firſt planted* there *by* Solomon, who doubtleſs try'd many rare *Experiments* of this nature; and none more *Kingly* then that of *Planting* to *Poſterity*. I do not ſpeak of thoſe which grow on the *Mountains* of *Libanus*, in the colder and *Northern* tracts of *Syria*: But, as I am inform'd by a curious *Traveller*, there remaining now not above *twenty four* of thoſe ſtately *Trees* in all thoſe goodly *Foreſts*, where that mighty *Prince* ſet *fourſcore thouſand Hewers* at work for the *Materials* of one only *Temple* and a *Palace*, 'tis a pregnant *Example* what *Time* and *Neglect* will bring to *ruine*, if due and continual care be not taken to propagate *Timber*.

4. Nor is it any wonder if we find the whole *Species* of ſome *Trees* ſo totally loſt in a *Countrey* as if there had never been any ſuch planted in it: Be this therefore applied to *Fir*, *Pine*, and many others with us, ſince it was ſo long ere *Rome* was acquainted with them, or indeed with any of the *Pitch* bearers.

5. We had our firſt *Myrtils* out of *Greece*, and *Cypreſs* from *Creete*, which was yet a meer ſtranger in *Italy*, as *Pliny* reports, and moſt difficult to be raiſed; which made *Cato* to write more concerning the *culture* of it then of any other *Tree*: Notwithſtanding we have in this *Countrey* of ours no leſs then *three* ſorts, which are all of them eaſily propagated, and proſper very well if they are rightly ordered; and therefore I ſhall not omit to diſcloſe one *ſecret*, as well to confute a *popular* Errour, as for the Inſtruction of our *Gard'ners*.

6. The *Tradition* is, That the *Cypreſs* (being a *Symbol* of *Mortality*, they ſhould ſay of the contrary) is never to be *cut* for fear of *killing* it. This makes them to *impale* and *wind* them about like ſo many *Ægyptian Mummies*; by which means the inward parts of the *Tree* being heated, for want of *Air* and Refreſhment, it never arrives to any perfection, but is exceedingly troubleſome, and chargeable to maintain; whereas indeed there is not a more *tonſile* and governable *Plant* in nature: For the *Cypreſs* may be *cut* to the very *Roots*, and yet ſpring afreſh: And this we find was the *husbandry* in the *Iſle* of *Ænaria*, where they us'd to fell it for *Copſe*: For the *Cypreſs* being rais'd from the *Nurſery* of *Seeds* ſown in *September* (or rather *March*), and within two years after *tranſplanted*, ſhould at two years ſtanding *more*, have the *maſter* ſtem of the *middle* ſhaft cut off ſome hand-breadth below the *ſummit*, the *ſides* and ſmaller ſprigs ſhorn into a *conique* or *pyramidal* form, and ſo kept *clipp'd* from *April* to *September*, as oft as there is occaſion; and by this *Regiment* they will grow *furniſh'd* to the *foot*, and become

come the moſt *beautiful* Trees in the world, without *binding* or *ſtake*; ſtill remembring to *abate* the *middle* ſtem, and to bring up the *collateral* branches in its ſtead to what altitude you pleaſe: Thus likewiſe may you form them into *Hedges* and *Topiary* works, or by ſowing the *Seeds* in a ſhallow *furrow*, and plucking up the *ſupernumeraries* where they come too cloſe and thick: For in this *work* it ſhall ſuffice to leave them within a foot of each other; and when they are riſen about a yard in height (which may be to the half of your *Paliſado*) cut off their *tops*, as you are taught, and keep the ſides *clipp'd*, that they aſcend but by degrees, and thicken at the bottome as they climbe. Thus they will preſent you in half a dozen or eight years with incomparable *hedges*, preferable to all others whatſoever, becauſe they are perpetually green, and able to reſiſt the *Winds* better then any which I know, the *Holly* only excepted, which indeed has no *peer*.

7. When I ſay *Winds*, I mean their fierceſt *guſts*, not their *cold*: For though it be ſaid, *Brumaq; illæſa Cupreſſus*, and that indeed no *froſt* impeaches them (for they grow even on the *ſnowy* tops of *Ida*,) yet our cruel *Eaſtern* winds do ſometimes mortally invade them which have been late *clipp'd*, ſeldome the untouch'd, or that were *dreſſed* in the *Spring* only: The effects of this laſt *March* and *April* Winds, accompanied with cruel Froſts and cold *blaſts*, for the ſpace of more then two *moneths* night and day, did not amongſt neer a thouſand *Cypreſſes* (growing in my *Garden*) kill above *three* or *four*, which for being very *late* cut to the *quick*, (that is, the latter end of *October*) were raw of their *wounds*, took cold, and *gangreen'd*; ſome few others which were a little ſmitten towards the *tops*, might have eſcaped all their blemiſhes, had my *Gard'ner* capp'd them but with a *wiſp* of *hay* or *ſtraw*, as in my abſence I *commanded*. As for the *froſt* of the paſt *Winter* (then which I believe there was never known a more cruel and deadly piercing ſince *England* had a name) it did not touch a *Cypreſs* of mine till it joyn'd forces with that deſtructive *Wind*: Therefore for *caution*, clip not your *Cypreſſes* late in *Autumn*, and cloath them againſt theſe *winds*; for the *froſts* they only *diſcolour* them, but ſeldome or never hurt them, as by long *experience* I have found.

8. If you affect to ſee your *Cypreſs* in *Standard*, and grow wild (which may in time come to be of a large ſubſtance, fit for the moſt immortal of *Timber*) plant of the *Male* ſort; it is a *Tree* which will proſper wonderfully; and where the ground is *hot*, and *gravelly*, though he be nothing ſo beautiful.

9. There is likewiſe the *Tarentine Cypreſs*, ſo much celebrated by *Cato*: I do not mean our *Savine*, (which ſome erroneouſly take for it) both *that*, and the *Mileſian*, are worthy our culture.

10. I have already ſhew'd how this *Tree* is to be rais'd from the *ſeed*; but there was another *Method* amongſt the *Ancients*, who (as I told you) were wont to make great *Plantations* of them for their *Timber*: I have practis'd it my ſelf, and therefore deſcribe it.

11. If you receive your *ſeed* in the *Nuts*, expoſe them to the

Sun

Sun till they *gape*, or neer a gentle *fire*, by which means the *ſeeds* will be eaſily ſhaken out; for if you have them open before, they do not yield you half their crop.

About the beginning of *April* (or before, if the weather be *ſhowery*) prepare an even *Bed*, which being made of fine *earth*, clap down with your *Spade*, as *Gard'ners* do for *Purſelain-ſeed*: (of old they roll'd it with ſome *Stone* or *Cylinder*) Upon this ſtrew your *ſeeds* pretty thick; then ſieft over them ſome more *mould* for almoſt an *inch* in height: keep them duly *watered* after *Sun-ſet*, unleſs the ſeaſon do it for you; and after one *years* growth (for they will be an *inch* high in little more then a *Moneth*) you may *tranſplant* them where you pleaſe.

12. What the *Uſes* of this *Timber* are, for *Cheſts* and other *Utenſils*; as heretofore for *ſupporters* of *Vines*, *Poles*, *Rails*, and *Planks*, (reſiſting the *Worm*, *Moth*, and all putrefaction to *eternity*) the *Venetians* ſufficiently underſtand; who do every *twenty* year, and oftner (the *Romans* every *thirteen*) make a conſiderable *Revenue* of it out of *Candy*: And certainly a very gainful *commodity* it was, when the *Fell* of a *Cypreſetum* was heretofore reputed a good Daughters *Portion*, and the *Plantation* it ſelf call'd *Dotem filiæ*.

13. The *Timber* of this *wood* was of infinite eſteem with the *Ancients*: That laſting *Bridge* built over the *Euphrates* by *Semiramis* was made of this wood; and it is reported, *Plato* choſe it to write his *Laws* in before *Braſs* it ſelf, for the *diuturnity* of the matter: It is certain, that it never *rifts*, or *cleaves*, but with great violence; and the *bitterneſs* of its *juice* preſerves it from all *worms*, and putrifaction. To this day thoſe of *Creet*, and *Malta* make uſe of it for their *buildings*; becauſe they have it in plenty, and there is nothing out-laſts it: Finally, (not to forget even the very *chips* of this precious *wood*, which gives that flavour to *Muſcadines* and other rich *Wines*) I commend it for the improvement of the *Air*, as ſending forth moſt ſweet, and *aromatick* emiſſions, when ever it is either *clipp'd*, or *handled*: But,

Quid tibi odorato referam ſudantia ligno,

if I forget

The *Cedar?* which grows in all *extreams:* In the moiſt *Barbados*; the hot *Bermudas*, the cold *New England*; even where the *Snow* lyes (as I am aſſur'd) almoſt half the year: Why then it ſhould not thrive in *Old England*, I conceive is from our want of *induſtry*: It grows in the *Bogs* of *America*, and in the *Mountains* of *Aſia*: It ſeems there is no place affrights it; and I have frequently rais'd it of the *ſeeds*, which I ſet like the *Bay-berries*; and we might have of the very *beſt* kind in the *World* from the *Summer Iſlands*, though now almoſt utterly exhauſted there alſo, and ſo the moſt incomparable of that *ſacred* wood like to be quite *deſtroy'd* by our *Negligence*, which is by nature almoſt *eternal*: 1. *Cedar.* 2.

3. Thus I reade that in the *Temple* of *Apollo* at *Utica* there was found *Timber* of neer *two thouſand* years old; and in *Sagunti* of *Spain* a beam in a certain *Oratory* conſecrated to *Diana*, which had been

been brought from *Zant* 200 years before the destruction of *Troy*:

4. The *Sittim* mention'd in holy *Writ* is believ'd to have been a kind of *Cedar*, of which the most precious *Utensils* were form'd; so that when they said a thing was *cedro digna*, the meaning was, *worthy of eternity.*

CHAP. XXIV.

Of the Cork, Alaternus, Phillyrea, Granad, Myrtil, Jasmine, *&c.*

Cork.

1. THe *Cork* [*Suber*] grows in the *coldest* parts of *Biscany*, and in the *North* of *New England*: Why should we despair? That the great *Ilex* thrives well enough, his *Majesties* Privy-gardens at *White-hall* would once have shew'd, where stood a goodly *Tree*, of more then *fourscore* years old; though there be now but an *Impe* of it remaining. I wonder *Carolus Stephanus*, and *Benedictus Cursius* should write so confidently there were no *Cork-trees* in *Italy*, where I my self have travell'd through vast *Woods* of them about *Pisa*, and *Aquin*, and in divers other places between *Rome* and the *Kingdom* of *Naples*: That there were none in *France* indeed *Pliny* is expres, *Nat. Hist. l.* 16. *c.* 8.

2.

3. I shall not need rehearse the *Uses* of the *Bark* of this *Tree*, it is so well known; the *Timber* is else inconsiderable.

Alaternus.

1. The *Alaternus*, which we have lately receiv'd from the hottest parts of *Languedoc* (and that is equal with the heat of almost any *Country* in *Europe*) thrives with us in *England*, as if it were an *Indigene* and *Natural.*

2. I have had the honour to be the first who brought it into *Use* and reputation in this *Kingdom* for the most beautiful, and useful of *Hedges*, and *Verdure* in the world (the *swiftness* of the *growth* consider'd) and *propagated* it from *Cornwall* even to *Cumberland*: The seed grows ripe with us in *August*; and the hony-breathing *Blossomes* afford an early and marvellous relief to the *Bees.*

Phillyrea.

1. All the *Phillyrea's* are yet more *hardy*; which makes me wonder to find the *Angustifolia* planted in *Cases*, and so charily set into the *stoves*, amongst the *Oranges* and *Lemmons*; when by long *experience* I have found it equal our *Holly* in suffering the extreamest rigours of our cruellest *Frosts*, and *Winds*, which is doubtless (of all our *English* Trees) the most insensible and stout.

2. They are (both *Alaternus* and *this*) raised of the *seeds* (though those of the *Phillyrea* will be long under ground) and being transplanted for *Espalier* hedges, or *Standards*, are to be govern'd by the *shears*, as oft as there is occasion: The *Alaternus* will be up in one *Moneth* after it is sown: Plant it out at two years growth, and *clip* it after *rain* in the *spring*, before it grows sticky,

and

and whiles the ſhoots are tender; thus will it form an *hedge* (though planted but in ſingle rows and at two foot diſtance) of a yard in thickneſs, twenty foot high (if you deſire it) and furniſh'd to the bottom: But for an hedge of this altitude, it would require the friendſhip of ſome *Wall*, or a *Frame* of luſty *poles*, to ſecure againſt the *Winds* one of the moſt delicious objects in nature: But if we could have ſtore of the *Phillyrea folio leviter ſerrato* (of which I have rais'd ſome very fine *Plants* from the ſeeds) we might fear no *weather*, and the *verdure* is incomparable.

1. The culture of the *Granade* does little differ from that of the *Alaternus*, of which we might raiſe conſiderable *hedges* on all our *Southern* Aſpects: They have ſupported this laſt moſt unmerciful *Winter* without any artifice; and if they yield us their *flowers* for our pains of well *pruning* (for they muſt diligently be purged of their *wood*) it is a glorious recompence: I plant them in my *Hedge-rows* even amongſt the *Quick*. *Granade.*

1. The vulgar *Italian* wild *Myrtil* (though not indeed the moſt *fragrant*) grows high, and ſupports all *weathers*. I know of *one* neer *fifty* years old, which has been continually *expos'd*; unleſs it be, that in ſome exceeding *ſharp* ſeaſons a little *ſtraw* has been thrown upon it; and where they are *ſmitten*, being cut down neer the ground, they put forth and recover again; which many times they do not in *Pots*, and *Caſes*, where the *roots* are very obnoxious to periſh with *mouldineſs*. The ſhelter of a few *Mats*, and *Straw*, ſecur'd very great Trees (both leaf and colour in perfection) this laſt Winter alſo, which were planted *abroad*; whiles thoſe that were carried into the *Conſerve* were moſt of them loſt. *Myrtils* may be rais'd of *ſeeds*, but with great caution; and they ſeldom prove hardy, nor is it worth the time being ſo abundantly encreaſed of *Layers*: But, *Myrtil.*

2. I produce not theſe *particulars*, and other *amœna vireta* already mention'd, as ſignifying any thing to *Timber*, the main deſign of this *Treatiſe* (though I reade of ſome ſo *tall*, as to make ~~make~~ *Spear ſhafts*) but to *exemplifie* in what may be farther added to *Ornament* and *Pleaſure* by a cheap, and moſt agreeable *induſtry*.

The common *white* and *yellow Jaſmine* would *flower* plentifully in our *Woods*, and is as hardy as any of the *Periclimena*; (how it is propagated by *ſubmerſion*, or *layers*, every *Gard'ner* skills) and if it were as much imploy'd for *Noſe-gays*, *&c.* with us, as it is in *France* and *Italy*, they might make *money* enough of the *Flowers*: One ſorry tree in *Paris*, where they abound, has been worth to a poor *woman* neer *twenty* ſhillings in a year. *Jaſmine.*

CHAP.

CHAP. XXV.

Of the Acacia, Arbutus, Bays, Box, Yew, Holly, Juniper, *and* Laurel-trees.

Acacia. 1. THe *French* have lately brought in the *Virginian Acacia*, which exceedingly adorns their *Walks :* The Tree is hardy againſt all the invaſions of our ſharpeſt ſeaſons, but our high *winds*; which by reaſon of its brittle nature it does not ſo well reſiſt; and the *Roots* (which inſinuate and run like *liquorize* under ground) are apt to *emaciate* the *ſoil*, and therefore haply not ſo commendable in our *Gardens*, as they would be agreeable for va-
2. riety of Walks and ſhade : They thrive well in his *Majeſties* new *Plantation* in St. *James*'s Park.

Arbutus. 1. But why do we thus neglect the *Arbutus*, and make that ſuch a *rarity*, which grows ſo common, and ſo naturally in *Ireland?* It is indeed with ſome difficulty rais'd from the *ſeeds*; but it may be propagated from the *Layers*, grows to a goodly *Tree*, and is patient of our ſevereſt weather.

Bayt. 1. *Bays* are encreas'd both of their *Suckers*, and *Seeds*, which ſhould be *dropping-ripe* ere gather'd : *Pliny* has a particular *proceſs* for the ordering of the *ſeeds*, and it is not to be rejected: Which is, the gathering the *Berries* dry, in *January*, and ſpreading them till their ſweat be over ; then he puts them in *dung* and ſows them : As for the ſteeping in *wine*, *water* does altogether as well: others waſh the ſeeds from their *mucilage*, by breaking and bruiſing the glutinous *Berries*; then ſow them in *March* by ſcores in a heap; and indeed ſo they will come up in *cluſters*, but nothing ſo well, nor fit for *tranſplantation*, as where they are *interr'd* with a competent ſcattering, ſo as you would furrow *Peaſe :* Both this way, and by *ſetting* them apart (which I moſt commend) I have rais'd multitudes, and that in the *berries* without any far-
2. ther *preparation*; only for the firſt two years they would be defended from the piercing *winds* which frequently deſtroy them; and yet the ſcorching of their tender *leaves* ought not make you deſpair, for many of them will recover beyond expectation.

3. This *aromatic* Tree greatly loves the *ſhade*, yet thrives beſt in our hotteſt *Gravel*, having once paſs'd thoſe firſt difficulties : *Age* and *Culture* about the roots wonderfully augment its growth; ſo as I have ſeen *Trees* neer thirty foot high of them; and almoſt two foot *diameter*. They are fit alſo both for *Arbour* and *Paliſade-work*, ſo the *Gard'ner* underſtand when to prune, and keep it from growing too *woody*.

Box. 1. The *Box* which we begin to *proſcribe* our *Gardens*, ſhould not yet be baniſh'd from our care; becauſe the excellency of the *wood* does commute for the unagreeableneſs of its ſmell: therefore, let us furniſh our cold, and barren *Hills*, and declivities with this uſeful *Shrub :* It will increaſe abundantly of *ſlips* ſet in *March*.

2. The

2. The *Turner*, *Ingraver*, *Mathematical-Inſtrument*, *Comb* and *Pipe-makers* give great prizes for it by *weight*, as well as meaſure; and by the *ſeaſoning*, and divers manner of *cutting*, vigorous *inſolations*, *politure* and *grinding*, the Roots of this *Tree* (as of even our common, and neglected *Thorne*) do furniſh the *Inlayer* and *Cabinet-makers* with pieces rarely *undulated*, and full of variety.

3. The *Chymical* oyl of this *wood* has done the feats of the beſt *Guajacum* (though in greater quantity) for the cure of *Venereal* diſeaſes, as one of the moſt expert *Phyſitians* in *Europe* has confeſs'd.

1. Since the uſe of *Bows* is laid aſide amongſt us, the propagation of the *Eugh-tree* is likewiſe quite forborn; but the neglect of it is to be deplor'd; ſeeing that (beſides the rarity of it in *Italy*, and *France*, where but little of it grows) the barreneſt grounds, and coldeſt of our mountains (for *Eugh.*

——*Aquilonem & frigora taxi*) might be profitably repleniſh'd with them: I ſay, profitably, for, beſides the uſe of the *wood* for *Bows*

——*Ityreos taxi torquentur in arcus.* The foremention'd *Artiſts* in *Box* moſt gladly imploy it: And for the *cogs* of *Mills*, *Poſts* to be ſet in moiſt grounds, and everlaſting *Axle-trees*, there is none to be compar'd with it, likewiſe for the bodies of *Lutes*, *Theorbas*, *&c.* yea, and for *Tankards* to drink out of, whatever *Pliny* report of its *ſhade*, and fatal *fruit* in *Spain*, *France* and *Arcadia*.

2. The *toxic* quality was certainly in the *liquor* which thoſe good *Fellows* tippl'd out of thoſe *bottles*, not in the *nature* of the *wood*; which yet he affirms is cur'd of that *Venenous* quality by driving a *brazen wedge* into the body of it: This I have never tri'd, but that of the *ſhade* and *fruit* I have frequently, without any deadly, or noxious effects: ſo that I am of opinion that *Tree* which *Seſtius* calls *Smilax*, and our *Hiſtorian* thinks to be our *Eugh*, was ſome other *Wood*.

3. This *Tree* is eaſily produc'd of the *ſeeds*, waſh'd and cleans'd from their *mucilage*; and burried in the ground like *Haws*; It will commonly be the ſecond *Winter* ere they peep, and then they riſe with their *caps* on their *heads*: Being three years old you may *tranſplant* them, and form them into *Standards*, *Knobs*, *Walks*, *Hedges*, *&c.* in all which works they ſucceed marvellous well, and are worth our patience for their *perennial verdure*, and *durableneſs*.

4. He that in *Winter* ſhould behold ſome of our higheſt *Hills* in *Surrey* clad with whole *Woods* of theſe two laſt ſort of *Trees*, for divers *Miles* in *circuit*, (as in thoſe delicious *Groves* of them, belonging to the *Honourable* my noble friend Sir *Adam Brown* of *Bech-worth-Caſtle*, from *Box-hill*, and neer our famous *Mole* or *Swallow*) might without the leaſt violence to his *Imagination*, eaſily plant he himſelf tranſported into ſome new or enchanted *Country*; for, if in any *ſpot* of *England*,

Hîc ver perpetuum, atque alienis menſibus æſtas.

——'Tis here
Eternal *Spring*, and *Summer* all the year.

Holly. 1. But, above all the natural *Greens* which inrich our *home-born* ſtore, there is none certainly to be compar'd to the *Holly*; inſomuch as I have often wonder'd at our *Curioſity* after *forreign* Plants, and expenſive *difficulties*, to the neglect of the *culture* of this *vulgar*, but *incomparable* Tree; whether we will propagate it for *Uſe*, and *Defence*; or for *ſight* and *ornament*.

2. Is there under *heaven* a more glorious and refreſhing object of the kind, than an impregnable *Hedge* of *one hundred* and *ſixty foot* in *length*, *ſeven* foot *high*, and *five* in *diameter*, which I can ſhew in my poor *Gardens* at any time of the year, glitt'ring with its arm'd and verniſh'd *leaves*? the taller *Standards* at orderly diſtances bluſhing with their natural *Corall:* It mocks at the rudeſt aſſaults of the *Weather*, *Beaſts*, or *Hedge-breaker*,

Et illum nemo impunè laceſſit.

3. I have already ſhew'd how it is to be rais'd of the *Berries*, when they are ready to *drop:* Remove them alſo after three or four years; but if you plant the *Sets* (which is likewiſe a commendable way, and the *Woods* will furniſh enough) place 'em *Northwards*, as they do *Quick*. Of *this* might there living *Pales* and Encloſures be made (ſuch as the Right Honourable my Lord *Dacres*, ſomewhere in *Suſſex*, has a *Park* almoſt environ'd with, able to keep in any *Game*, as I am credibly inform'd) and cut into *ſquare Hedges*, it becomes impenetrable, and will thrive in *hotteſt* as well as the *coldeſt* places. At *Dengeneſſe* in *Kent* they grow naturally amongſt the very *beach*, and *pibbles:* And this rare Hedge, the boaſt of my *Villa*, was planted upon a *burning* gravel, expos'd to the *meridian* Sun.

4. True it is, that *time* muſt bring this *Tree* to perfection; it does ſo to all things elſe, *& poſteritati pangimus*. But what if a little *culture* about the *Roots* (not *dunging*, which it abhorres) and frequent ſtirring of the *mould* doubles its growth? We ſtay *ſeven years* for a tolerable *Quick*, it is worth ſtaying it *thrice* for *this*, which has no *Competitor*.

5. And yet there is an expedient to effect it more inſenſibly, by planting it with the *Quick:* Let every *fift* or *ſixt* be an *Holly-ſet*, they will grow up infallibly with your *Quick*, and as *they* begin to ſpread, make way for them, by extirpating the *White-thorn*, till they quite domineer: Thus was my *Hedge* firſt *planted*, without the leaſt interruption to the *Fence*, by a moſt pleaſant *Metamorphoſis*. But there is alſo another, not leſs applauded, by laying along of well rooted *Sets* (a yard or more in length) and ſtripping off the *leaves* and *branches:* theſe cover'd with a competent depth of earth will ſend forth innumerable *Suckers* which will ſuddenly advance into an Hedge.

6. The

6. The *Timber* of the *Holly* is for all ſturdy *uſes*; the *Mill-Wright*, *Turner* and *Engraver* prefer it to any other: It makes the beſt *handles*, and *ſtocks* for *Tools*, and of the *Bark* is compos'd our *Bird-lime*.

Juniper.

1. Of *Juniper* we have *two ſorts*, whereof *one* is much taller, and more fit for Improvement: The *wood* is *yellow*, and *ſweet* as *Cedar*, whereof it is accounted a *dwarfiſh* ſort.

2. I have rais'd them abundantly of their *ſeeds*, which in two moneths will peep, and being govern'd like the *Cypreſſe*, apt for all the employments of that beautiful Tree: The diſcreet looſening of the *Earth* about the *Roots* alſo makes it ſtrangely to prevent your expectations by ſuddenly ſpreading into a *buſh* fit for a thouſand pretty Employments; for coming to be much unlike that which grows *wild*, and is ſubject to the treading and cropping of *Cattle*, *&c.* it may be form'd into moſt beautiful and uſeful *Hedges*: My *Brother* having cut out of one onely *Tree* an *Arbour* capable for *three* to ſit in: It was at my laſt meaſuring *ſeven* foot ſquare, and *eleven* in height; and would certainly have been of a much greater altitude and farther ſpreading, were it not continually kept *ſhorn*: But what is moſt conſiderable is the little time ſince it was *planted*, being yet hardly *ten years*, and then it was brought out of the *Common* a ſlender *Buſh* of about *two foot* high: But I have experimented a proportionable improvement in my own *Garden*, where I do mingle them with *Cypreſſe*, and they perfectly become their ſtations.

3. The Berries afford (beſides a tolerable *Pepper*) one of the moſt univerſal *Remedies* in the world to our crazy *Foreſter*; and the *Coals*, which are made of the *Wood*, endure the longeſt of any: If it arrive to full growth it is *Timber* for many curious works; the very *Chips* render a wholeſom *perfume* within doors, as well as the duſty *bloſſoms* in *Spring* without.

Laurel.

1. But to *Crown* all, I will conclude with the *Laurell*, which by the *Uſe* we commonly put it to, ſeems as if it had been only deſtin'd for *Hedges*, and to cover bare *Walls*; whereas, being planted *upright*, and kept to the *Standard*, by cutting away the collateral *Branches*, and maintaining one *ſtem*, it will riſe to a very conſiderable *Tree*; and (for the firſt twenty years) reſembling the moſt beautiful headed *Orange* in *ſhape* and *verdure*, arrive in time to emulate even ſome of our luſty *Timber-trees*; ſo as I dare pronounce the *Laurel* to be one of the moſt proper and ornamental Trees for *Walks* and *Avenues* of any growing.

2. Pity it is they are ſo abus'd in the *Hedges*, where the lower Branches growing *ſtickie* and *dry*, by reaſon of their frequent and unſeaſonable *cutting* (with the *genius* of the *Tree*, which is to ſpend much in wood) they never ſucceed after the firſt *ſix* or *ſeven* years; but are to be new *planted* again, or abated to the very *Roots* for a freſh *ſhoote*.

3. But would you yet improve the *Standard* which I celebrate, to greater and more ſpeedy exaltation? bud your *Laurel* on the *Black-Cherry-ſtock* to what height you pleaſe; if at leaſt the re-

port be true, which I had from an ocular teſtimony, and am now making an eſſay of, becauſe I am more then ſomewhat doubtful of ſuch *Allyances*, though ſomething like it in *Palladius* ſpeaks it not ſo impoſſible;

Inſeritur lauro Ceraſus, partuq; coacto
Tingit adoptivus virginis ora pudor.

4. They are rais'd of the *Seeds* or *Berries* with extraordinary facility, or propagated by *Layers* and *cuttings* where-ever there is ſhade and moiſture. I have finiſh'd now my *Planting:* A word or two concerning their *Preſervation*, and the *Cure* of their *Infirmities.*

CHAP. XXVI.

Of the Infirmities of Trees.

Infirmities. THe *Diſeaſes* of *Trees* are various, affecting the ſeveral *parts:* Theſe invade the Roots; *Weeds*, *Suckers*, *Fern*, *Wet*, *Mice*, and *Moles.*

1. *Weeds* are to be diligently pull'd up by *hand* after *Rain*, whiles your *Seedlings* are very young, and till they come to be able to kill them with *ſhade* and *over-dripping*: And then are you for the *obſtinate* to uſe the *Haw*, *Fork*, and *Spade*, to extirpate *Dog-graſs*, *Bear-bind*, &c.

2. *Suckers* ſhall be duly *eradicated*, and with a ſharp *ſpade* dexterouſly ſeparated from the *Mother-roots*, and Tranſplanted in convenient places for *propagation*, as the *Seaſon* requires.

3. *Fern* is beſt deſtroy'd by *ſtriking* off the *Tops*, as *Tarquin* did the *heads* of the *Poppies:* This done with a good *wand* or *cudgel*, at the *decreaſe* in the *Spring*, and now and then in *Summer*, kills it in a *year* or *two* beyond the vulgar way of *Mowing*, or *burning*, which rather encreaſes then diminiſhes it.

4. Over-much *Wet* is to be drain'd by *Trenches*, where it infeſts the *Roots* of ſuch kinds as require drier ground: But if a *drip* do fret into the body of a *Tree* by the head, (which will certainly decay it) cutting firſt the place ſmooth, *ſtop* and cover it with *loam* and *hay* till a new *bark* ſucceed.

Theſe infeſt the Bark; *Bark-bound*, *Teredo*, or Worm, *Conys*, *Moſs*, *Ivy*, &c.

5. The *Bark-bound* are to be releaſed by drawing your *knife* rind-deep from the *Root*, as far as you can conveniently; and if the *gaping* be much, filling the *rift* with a little *Cow-dung*; do this on each ſide, and at *Spring*, *February* or *March*; alſo cutting off ſome *branches* is profitable; eſpecially ſuch as are *blaſted* or *lightning*-ſtruck.

6. The

6. The *Teredo*, *Coſſi*, and other *Worms*, lying between the *Body* and the *Bark*, poyſon that paſſage to the great prejudice of ſome *Trees*; but the *holes* being once found, they are to be taken out with a light *Inciſion*.

7. *Conies* and *Hares* by barking the *Trees* in hard *Winters* ſpoil very many tender *Plantations*: Next to the utter deſtroying them there is nothing better then to anoint that part which is within their reach with *ſtercus humanum*, tempered with a little *Water* or *Urine*, and lightly *bruſhed* on; this renew'd after every great *Rain*.

8. *Moſs* is to be rubb'd and ſcrap'd off with ſome fit inſtrument of *Wood*, which may not *excorticate* the *Tree*, or with a piece of *Hair-cloth* after a ſobbing *Rain*: But the moſt infallible Art of *Emuſcation* is taking away the *cauſe*, which is ſuperfluous *moiſture* in *clayie* and ſpewing grounds.

9. *Ivy* is deſtroy'd by digging up the *Roots*, and looſning its hold: *Miſsleto*, and other *Excreſcences* to be cut and broken off.

10. The *Bodies* of *Trees* are viſited with *Canker*, *Hollowneſs*, *Hornets*, *Earwigs*, *Snails*, &c.

11. *Cankers* (cauſed by ſome ſtroak or galling) are to be *cut* out to the *quick*, the ſcars *emplaiſtred* with *Tar* mingled with *Oil*, and over that a thin ſpreading of *loam*; or elſe with *clay* and *Horſ-dung*; or by laying *Wood-aſhes*, *Nettles*, or *Fern* to the roots, *&c.*

12. *Hollowneſs* is contracted when by reaſon of the ignorant or careleſs *lopping* of a *Tree* the wet is ſuffer'd to fall *perpendicularly* upon a part, eſpecially the *Head*: In this caſe if there be ſufficient ſound *wood* cut it to the *quick* and cloſe to the body, and cap the *hollow* part with a *Tarpaulin*, or fill it with good ſtiff *loam* and fine *hay* mingled. This is one of the worſt of *Evils*, and to which the *Elm* is moſt obnoxious.

13. *Hornets* and *Waſps*, *&c.* by breeding in the hollowneſs of *Trees* infeſt them, and are therefore to be deſtroy'd by ſtopping up their entrances with *Tar* and *Gooſ-dung*, or by conveying the fumes of *brimſtone* into their *Cells*.

14. *Earwigs* and *Snails* do ſeldome infeſt *Foreſt-trees*, but thoſe which are *Fruit-bearers*, and are deſtroy'd by enticing them into ſweet waters, and by picking the *Snails* off betimes in the *Morning*, and rainy *Evenings*. Laſtly,

Branches, *Buds*, and *Leaves* extreamly ſuffer from the *Blaſts*, *Jaundies*, and *Caterpillars*, *Rooks*, &c.

15. The *blaſted* parts of Trees are to be *cut* away to the *quick*; and to prevent it, *ſmoak* them in ſuſpicious *weather*, by burning *moiſt ſtraw* with the *wind*, or rather the dry and ſuperfluous *cuttings* of *Arromatick* plants, ſuch as *Roſemary*, *Lavender*, *Juniper*, *Bays*, &c.

Mice, *Moles*, and *Piſmires* cauſe the *Jaundies* in *Trees*, known by the *diſcolour* of the *Leaves* and *Buds*.

16. The *Moles* may be taken in *Traps*, and kill'd, as every *Woodman* knows: It is certain that they are driven from their *haunts* by *Garlick* for a time, and other heady ſmells buried in their paſſages.

17. *Mice*

17. *Mice* with *Traps*, or by ſinking ſome *Veſſel* almoſt level with the ſurface of the ground, the *Veſſel* half full of *Water*, upon which let there be ſtrew'd ſome *huls* or *chaff* of *Oates*; alſo with *Bane*.

18. Deſtroy *Piſmires* with ſcalding water, and diſturbing their *hills*.

19. *Caterpillars*, by cutting off their *webs* from the twigs before the end of *February*, and burning them; the ſooner the better: If they be already *hatched* waſh them off, or choak and dry them with *ſmoak*.

20. *Rooks* do in time, by pinching off the *buds* and tops of *Trees* for their *Neſts*, cauſe many Trees and *Groves* to decay.

Theſe (amongſt many others) are the *Infirmities* to which *Foreſt-Trees* are ſubject whilſt they are ſtanding; and when they are *fell'd*, to the *Worm*; eſpecially if *cut* before the *Sap* be perfectly at reſt: But to *prevent* or *cure* it in the *Timber*, I recommend this *Secret* as the moſt approv'd.

21. Let common yellow *Sulphur* be put into a *cucurbit-glaſs*, upon which pour ſo much of the ſtrongeſt *Aqua-fortis* as may cover it three fingers deep: *Diſtil* this to dryneſs, which is done by two or three *Rectifications*: Let the *Sulphur* remaining in the bottom (being of a blackiſh or ſad red colour) be laid on a *Marble*, or put into a *Glaſs*, where it will eaſily diſſolve into *Oil*: With this *anoint* what is either *infected* or to be preſerved of *Timber*. It is a great and excellent *Arcanum* for tinging the *Wood* with no unpleaſant *colour*, by no Art to be waſhed out; and ſuch a preſervative of all manner of *Woods*, nay of many other things; as *Ropes*, *Cables*, *Fiſhing-nets*, *Maſts of Ships*, *&c.* that it defends them from *putrefaction*, either in *Waters*, under or above the earth, in the *Snow*, *Ice*, *Air*, *Winter* or *Summer*, &c.

It were ſuperfluous to deſcribe the *proceſs* of the *Aqua-fortis*; It ſhall be ſufficient to let you know, That our common *Coperas* makes this *Aqua-fortis* well enough for our purpoſe, being drawn over by a *Retort*: And for *Sulphur* the *Iſland* of St *Chriſtophers* yields enough (which hardly needs any *Refining*) to furniſh the whole *world*. This *Secret* (for the *Curious*) I thought fit not to omit; though a more compendious three
22. or four *anointings* with *Linſeed Oil*, has prov'd very effectual: It was experimented in a *Wall-nut Table*, where it deſtroy'd millions of *Worms* immediately, and is to be practis'd for *Tables*, *Tubes*, *Mathematical Inſtruments*, *Boxes*, *Bedſteads*, *Chairs*, *Rarities*, &c. *Oyl* of *Wall-nuts* will doubtleſs do the ſame, is ſweeter, and a better *Verniſh*; but above all is commended Oyl of *Cedar*, or that of *Juniper*.

Hitherto I have ſpoken of *Trees*, their *kinds*, and *propagation* in particular: Now a *word* or two concerning their *ordering* in general, as it relates to *Copſes*, *Lopping*, *Felling*, &c.

Then I ſhall add ſomething more concerning their *Uſes*, as to *Fewel*, &c. and caſt ſuch accidental *Leſſons* into a few *Aphoriſms*, as could not well be more *regularly* inſerted.

Laſtly,

Laſtly, I ſhall *conclude* with ſome more ſerious *Obſervations* in reference to the main *Deſign* and project of this *Diſcourſe*, as it concerns the *Improvement* of His *Majeſties Foreſts*, for the *honour* and ſecurity of the whole *Kingdom*.

CHAP. XXVII.

Of Copſes.

Copſes.

1. *Sylva Cædua* is as well *Copſe* to cut for *Fewel* as for uſe of *Timber*; and we have already ſhew'd how it is to be *rais'd*, both by *Sowing* and *Planting*. Our ordinary *Copſes* are chiefly upon *Haſel*, or the *Birch*; but if amongſt the other kinds ſtore of *Aſh* and *Sallow* (at leaſt *one* in *four*) were ſprinkled in the *Planting*, the *profit* would ſoon diſcover a difference, and well recompence the Induſtry. Others adviſe us to plant ſhoots of *Sallow*, *Willow*, *Alder*, and of all the *ſwift* growing Trees, being of ſeven years growth, *ſloping* off both the ends towards the ground to the length of a *Billet*, and burying them a reaſonable depth in the earth. This will cauſe them to put forth ſeven or eight *branches*, each of which will become a *Tree* in a ſhort time, eſpecially if the ſoil be moiſt.

2. *Copſes* being of a competent growth, as of *twelve* or *fifteen* years, are eſteem'd fit for the *Ax*; but thoſe of *twenty* years ſtanding are better, and far advance the price. Some of our old *Clergy* Spring-woods heretofore have been let reſt till twenty five or thirty years, and have prov'd highly worth the attendance; for by that time even a *Seminary* of *Acorns* will render a conſiderable advance, as I have already exemplified in the *Northamptonſhire* Lady. And if *Copſes* were ſo divided as that every year there might be ſome *fell'd*, it were a continual and a preſent profit: Seventeen years growth affords a tolerable *Fell*; ſuppoſing the *Copſe* of ſeventeen *Acres*, one *Acre* might be yearly *fell'd* for ever; and ſo more, according to proportion.

3. As to what *Numbers* and *Scantlings* you are to leave on every *Acre*, the *Statutes* are our generall *guides*, at leaſt the legal. It is a very ordinary *Copſe* which will not afford three or four *Firſts*, that is, *Beſts*; fourteen *Seconds*; twelve *Thirds*; eight *Wavers*, &c. according to which *proportions* the ſizes of young Trees in *Copſing* are to ſucceed one another. By the *Statute* of 35 *Hen.* 8. in *Copſes* or *Under-woods* fell'd at twenty four years growth, there were to be left twelve *Standils*, or *Stores* of *Oak*, upon each *Acre*; in defect of ſo many *Oaks*, the ſame number of *Elms*, *Aſh*, *Aſp*, or *Beech*; and they to be ſuch as are of likely Trees for *Timber*, and of ſuch as have been ſpar'd at ſome former *Felling*, unleſs there were none, in which caſe they are to be *then* left, and ſo to continue without *Felling* till they are *ten inch ſquare* within a *yard* of ground.

Copſes

Copſes above this growth *fell'd*, to leave 12 great *Oaks*; or in defect of them other *Timber-trees* (as above) and ſo to be left for 20 years longer, and to be encloſed ſeven years.

4. In ſumme, you are to ſpare as many likely *Trees* for *Timber* as with diſcretion you can. And as to the felling, (beginning at one ſide, that the *Carts* may enter without detriment to what you leave ſtanding) the Under-wood may be cut from *January* at the lateſt, till mid-*March*, or *April*; or from mid-*September*, till neer the end of *November*; ſo as all be avoided by *Midſomer* at the lateſt, and then *fenced* (Where the *Rowes* and *Bruſh* lye longer unbound or made up, you endanger the loſs of a *ſecond Spring*) and not to ſtay ſo long as uſually they are a *clearing*, that the *Young*, and the *Seedlings* may ſuffer the leaſt interruption.

5. It is advis'd not to cut off the *Browſe-wood* of *Oaks* in *Copſes*, but to ſuffer it to fall off, as where *Trees* ſtand very cloſe it uſually does: I do not well comprehend why yet it ſhould be *ſpared* ſo long.

6. When you eſpy a *cluſter* of *Plants* growing as it were all in a bunch, it ſhall ſuffice that you preſerve the faireſt *Sapling*, cutting all the reſt away. And if it chance to be a *Cheſs-nut*, *Service*, or like profitable *Tree*, cleer it from the droppings and incumbrances of other Trees, that it may thrive the better: Then as you paſs along, *prune*, and *trim* up all the young *Wavers*, covering ſuch *Roots* as lye bare and expos'd with freſh mould.

7. Cut not above *half a foot* from the *Ground*, and that ſlopewiſe; *ſtripping* up ſuch as you *ſpare* from their extravagant *Branches*, *Water-boughs*, *&c.* that hinder the growth of *others*: Always remembring (before you ſo much as enter upon this work) to preſerve ſufficient *Plaſh-pole* about the *verge* and bounds of the *Copſe* for *Fence*, and ſecurity of what you leave; and for this ſomething leſs then a *Rod* may ſuffice: Then *raking* your *Wood* cleer of *Spray*, *Chips*, and all *Incumbrances*, ſhut it up from the *Cattle*; the longer the better.

8. By the *Statute* men were bound to encloſe *Copſes* after *Felling*, of or under 14 years growth for 4 years: Thoſe above 14 years growth to be 16 years *Enclos'd*: And for *Woods* in *common*, a fourth part to be ſhut up; and at *Felling* the like proportion of great *Trees* to be left, and 7 years *Enclos'd*: This was enlarg'd by 13 *Eliz.*

Your elder *Under-woods* may be *graz'd* about *July*.

Then for the *Meaſure* of *Fuel* theſe *proportions* were to be obſerv'd.

9. Statutable *Billet* ſhould hold *three foot* in *length*, and *ſeven* inch and half *compaſs*; 10 or 14 as they are counted for 1, 2, or 3, *&c.*

A *ſtack* of *Wood* (which is the *boughs* and *offal* of the *Trees* to be converted to *Charcoal*) is 4 *yards* long, *three foot and half* high, (in ſome places but a *yard*) and as much *over*: In other places the *Cord* is 4 *foot* in *height* and 4 *foot* over; or, (to ſpeak more *Geometrically*) a *Sold* made up of three *dimenſions*, 4 foot high, four

four broad, and eight foot long; the *content* 128 *cubique* feet.

Fagots ought to be a full *yard* in *length*, and *two* foot in *circumference*, made *round*, and not *flat*; for ſo they contain leſs *Fuel*, though equal in the bulk appearing. But of theſe *particulars* when we come to ſpeak expreſly of Fuel.

10. In the mean time it were to be wiſh'd, that ſome approv'd *Experiments* were ſedulouſly try'd (with the advice of ſkilful and ingenious *Phyſitians*) for the making of *Beer* without *Hops*; as poſſibly with the white *Marrubium* (a Plant of ſingular virtue) or with dry'd *Heath-tops* (*viz.* that ſort which bears no *Berries*) or the like, far more wholeſom, and leſs *bitter* then either *Tamariſk*, *Carduus*, or *Broom*, which divers have eſſay'd; it might prove a means to ſave a world of *Fuel*, and in divers places young *Timber* and *Copſe-wood*, which is yearly ſpent for *Poles*; eſpecially in Countries where *Wood* is very precious.

CHAP. XXVIII.

Of Pruning.

1. PRuning I call all purgation of *Trees* from what is ſuperfluous. The *Ancients* found ſuch benefit in *Pruning*, that they feign'd a *Godeſs* præſided over it, as *Arnobius* tells us: And in truth, it is in the diſcreet performance of this *Work* that the Improvement of our *Timber* and *Woods* does as much conſiſt as in any thing whatſoever. A ſkilful *Planter* ſhould therefore be early at this work: Shall old *Gratius* give you *Reaſon* and *Direction*? *Pruning.*

Nunquam ſponte ſua procerus ad æëra termes
Exiit, inque ipſa curvantur ſtirpe geniſtæ.
Ergo age luxuriam primò fœtuſque nocenteis
Detrahe: frondoſas gravat indulgentia ſilvas.
Poſt ubi proceris generoſa ſtirpibus arbor
Se dederit, tereteſque ferent ad ſidera virgæ,
Stringe notas circum, & gemmanteis exige verſus.
His, ſi quis vitium nociturus ſufficit humor,
Viſceribus fluit, & venas durabit inertes. Gra. fal. Cynæget.

And his incomparable *Interpreter* thus in *Engliſh*:

Twigs of themſelves never riſe ſtrait and high,
And Under-woods are bow'd as firſt they ſhoot.
Then *prune* the *boughs*; and *Suckers* from the root
Diſcharge. *The leavy wood fond pity tires*;
After, when with tall rods the tree aſpires,
And the round ſtaves to heaven advance their twigs,
Pluck all the buds, and ſtrip off all the ſprigs;

Theſe iſſues vent what moiſture ſtill abound,
And the veins unimploy'd grow hard and ſound.
Waſe.

2. For 'tis a miſery to ſee how our faireſt *Trees* are defac'd, and mangl'd by unſkilful *Wood-men*, and miſchievous *Bordurers*, who go always arm'd with ſhort *Hand-bills*, hacking and chopping off all that comes in their way; by which our *Trees* are made full of *knots*, *boils*, *cankers*, and deform'd bunches, to their utter deſtruction: *Good husbands* ſhould be aſham'd of it. As much to be reprehended are thoſe who either begin this work at unſeaſonable times, or ſo maim the poor *branches*, that either out of lazineſs, or want of ſkill, they leave moſt of them *ſtubs*, and inſtead of cutting the *Arms* and *Branches* cloſe to the *boale*, hack them off a foot or two from the body of the *Tree*, by which means they become *hollow* and *rotten*, and are as ſo many *conduits* to receive the *Rain* and the *Weather*, which periſhes them to the very *head*, deforming the whole *Tree* with many ugly *botches*, which ſhorten its life, and utterly marre the *Timber*.

3. By this *Animadverſion* alone it were eaſie for an ingenious man to underſtand how *Trees* are to be govern'd; which is in a word, by cutting *clean*, *ſmooth*, and *cloſe*, making the ſtroke *upward*, and with a ſharp *Bill*, ſo as the weight of an untractable *bough* do not *ſplice*, and carry the *bark* with it, which is both dangerous and unſightly.

4. The proper ſeaſon for this work is a little after the *change* in *January*:

——*Tunc ſtringe comas, tunc brachia tonde:*
——*Tunc denique dura*
Exerce Imperia, & ramos compeſce fluenteis.

But this ought not to be too much in young *Fruit-trees*, after they once come to form a handſom *head*; in which period you ſhould but only pare them over about *March*, to cover the *ſtock* the ſooner, if the *Tree* be very choice: To the *aged*, this is plainly a renewing of their *Youth*, and an extraordinary refreſhment: Beſides, for *Interlucation*, exuberant *branches*, *& ſpiſſæ nemorum comæ*, where the *boughs* grow too thick and are cumberſome, to let in the *Sun* and *Air*, this is of great importance.

5. Divers other precepts of this nature I could here enumerate, had not the great *experience*, faithful and accurate *deſcription* how this neceſſary *Work* is to be perform'd, ſet down by our Country-man honeſt *Lawſon* (*Orchard*, *cap.* 11.) prevented all that the moſt *Inquiſitive* can ſuggeſt: The particulars are ſo ingenuous, and highly material, that you will not be diſpleas'd to read them in his own ſtyle.

All ages (ſaith he) by Rules and experience do conſent to a pruning, and lopping of Trees: Yet have not any that I know deſcribed unto us (except in dark, and general words) what, or which

which are those superfluous boughs, which we must take away; and that is the most chief, and most needful point to be known in lopping. And we may well assure our selves (as in all other Arts, so in this) there is a vantage, and dexterity by skill; an habit by practise out of experience, in the performance hereof, for the most of mankind: Yet do I not know (let me speak it with patience of our cunning Arborists) any thing within the compass of humane affairs so necessary, and so little regarded; not only in Orchards, but also in all other Timber-trees, where, or whatsoever.

Now to our purpose:

How many Forests, and Woods, wherein you shall have for one lively thriving Tree, four (nay sometimes twenty four) evil thriving, rotten and dying Trees, even whiles they live; and instead of Trees, thousands of bushes and shrubs? what rottenes? what hollowness? what dead arms? wither'd tops? curtail'd trunks? what loads of Mosse? drooping boughs? and dying branches shall you see every where? and those that like in this sort are in a manner all unprofitable boughs, canker'd arms, crooked, little and short boals. What an infinite number of bushes, shrubs, and skrags of Hasels, Thornes and other profitable wood, which might be brought by dressing to become great, and goodly trees? Consider now the Cause.

The lesser Wood hath been spoil'd with careless, unskilful, and untimely slowing; and much also of the great Wood. The greater Trees at the first rising have fill'd and overladen themselves with a number of wastefull boughs and suckers, which have not only drawn the sap from the boal, but also have made it knotty, and themselves, and the boal mossie, for want of dressing; whereas, if in the prime of growth they had been taken away close, all but one top, and clean by the bulk, the strength of all the sap should have gone to the bulk, and so he would have recovered, and cover'd his knots, and have put forth a fair, long and straight body, for Timber profitable, huge great of bulk, and of infinite last.

If all Timber-trees were such (will some say) how should we have crooked wood for Wheels, Coorbs, &c?

Answ. Dress all you can, and there will be enough crooked for those uses.

More then this; in most places they grow so thick, that neither themselves, nor earth nor any thing under or near them can thrive; nor Sun, nor Rain, nor Air can do them, nor any thing near, or under them, any profit or comfort.

I see a number of Hags, where out of one root you shall see three or four (nay more, such is mens unskilful greedines, who desiring many, have none good) pretty Oaks, or Ashes, straight and tall; because the root at the first shot gives sap amain: but if one only of them might be suffer'd to grow, and that well, and cleanly prun'd, all to his very top, what a Tree should we

have in time? And we see by those roots continually, and plentifully springing, notwithstanding so deadly wounded, what a commodity should arise to the Owner, and the Commonwealth if wood were cherished, and orderly dress'd. The waste boughs closely, and skilfully taken away, would give us store of Fences, and Fuel; and the bulk of the Tree in time would grow of huge length and bigness: But here (methinks) I hear an unskilful Arborist say, that Trees have their several forms, even by nature; the Pear, the Holly, the Aspe, &c. grow long in bulk, with few and little armes. The Oak by nature broad, and such like. All this I grant: But grant me also, that there is a profitable end and use of every Tree, from which if it decline (though by Nature) yet Man by Art may (nay must) correct it. Now other end of Trees I never could learn, than good Timber, Fruit much and good, and pleasure: Ales Physical hinder nothing a good form.

Neither let any Man ever so much as think, that it is unprobable, much lesse unpossible, to reform any Tree of what kind soever: For (believe me) I have tried it: I can bring any Tree (beginning by time) to any form. The Pear, and Holly may be made spread, and the Oak to close.

Thus far the good *Man* out of his *eight* and *forty* years *experience* concerning *Timber-trees:* He descends then to the *Orchards*; which because it may likewise be acceptable to our industrious *Planter*, I thus contract.

6. Such as stand for *Fruits* should be *parted* from within two foot (or thereabouts) of the earth; so high, as to give liberty to dress the *Root*, and no higher; because of exhausting the *sap* that should feed his *Fruit:* For the *boal* will be first, and best served and fed, being next to the *root*, and of greatest substance. These should be *parted* into two, three, or four *Arms*, as your *graffs* yield twigs; and every *Arm* into two, or more *Branches*, every *Branch* into his several *Cyons:* still spreading by equal degrees; so as his *lowest* spray be hardly without the reach of a mans *hand*, and his *highest* not past two yards higher: That no *twig* (especially in the middest) *touch* his fellow; let him spread as far as his list without any master-bough, or top, equally; and when any fall lower then his fellows (as they will with weight of *Fruit*) ease him the next *spring* of his superfluous *twigs*, and he will rise: When any mount above the rest, *top* him with a *nip* between your *fingers*, or with a *knife:* Thus reform any *Cyon*; and, as your Tree grows in *stature*, and *strength*, so let him rise with his tops, but *slowly*, and early; especially in the middest, and equally in breadth also; following him upward, with lopping his under-growth, and *water-boughs*, keeping the same distance of *two yards*, not above *three*, in any wise, betwixt the lowest and highest twigs.

1. Thus shall you have handsome, clear, healthful, great and lasting *Trees*.

2. Thus

2. Thus will they grow ſafe from *Winds*, yet the *top* ſpreading.

3. Thus ſhall they bear much *Fruit*; I dare ſay, one as much as five of your common *Trees*, all his branches loaden.

4. Thus ſhall your *Boal* being low defraud the branches but little of their *ſap*.

5. Thus ſhall your *Trees* be eaſie to *dreſs*, and as eaſie to gather the *Fruit* from, without bruiſing the *Cyons*, *&c.*

6. The fitteſt time of the *Moon* for *Pruning* is (as of *Graffing*) when the *ſap* is ready to ſtir (not proudly ſtirring) and ſo to cover the *wound*. Old Trees would be prun'd before young Plants: And *note*, that whereſoever you take any thing away, the *ſap* the next *Summer* will be putting: be ſure therefore when he puts to bud in any unfit place, you *rub* it off with your finger: Thus begin timely with your *Trees*, and you may bring them to what form you pleaſe. If you deſire any *Tree* ſhould be taller, let him *break*, or divide higher: This for *young* Trees: The *old* are reformed by curing of their *diſeaſes*, of which we have already diſcours'd. There is this only to be conſider'd, in reference to *Foreſters*, out of what he has ſpoken concerning *Fruit-trees*; that where *Trees* are planted for ſhadow, and meer *ornament*, as in *Walks*, and *Avenues*, the *Browſe-wood* (as they call it) ſhould moſt of it be cheriſhed; whereas in *Fruit*, and *Timber-trees* (*Oak* excepted) it is beſt to free them of it: As for *Pollards* (to which I am no great friend becauſe it makes ſo many *ſcrags* and *dwarfes* of many *Trees* which would elſe be good *Timber*, endangering them with *drips* and the like *injuries*) they ſhould not be *headed* above once in ten or twelve years, at the beginning of the *ſpring*, or end of the *Fall*.

7. For the improvement of the ſpeedy growth of *Trees*, there is not a more excellent thing then the frequent *rubbing* of the *Boal* or *Stem*, with ſome piece of *hair-cloth*, or ruder ſtuff, at the beginning of *Spring*: ſome I have known done with *Seales-skin*; the more rugged bark with a piece of *Coat* of *Maile*, which is made of ſmall *wyres*; this done, when the body of the *Trees* are wet, as after a ſoaking *Rain*; yet ſo, as not to *excorticate*, or gall the *Tree*, has exceedingly accelerated its growth, by opening the *pores*; freeing them of moſs, and killing the *worm*.

8. Laſtly, *Frondation*, or the taking off ſome of the luxuriant *branches*, and ſprays, of ſuch *Trees*, eſpecially whoſe leaves are profitable for *Cattel* (whereof already) is a kind of *pruning*: and ſo is the *ſcarifying*, and croſs *hatching* of ſome *Fruit-bearers*, and others, to abate that φυλλομανία which ſpends all the *juice* in the leaves to the prejudice of the reſt of the parts.

9. This, and the like, belonging to the *care* of the *Wood-ward*, will mind him of his continual duty; which is to walk about, and ſurvey his young *Plantations* daily; and to ſee that all *Gaps* be immediately ſtopp'd; treſpaſſing *Cattle* impounded; and (where they are infeſted) the *Deer* chaſed out, *&c.* It is moſt certain that *Trees* preſerv'd, and govern'd by this *diſcipline*, and according to the

the *Rules* mention'd, would increaſe the beauty of *Foreſts*, and value of *Timber*, more in ten, or twelve years, then all other imaginable *Plantations* (accompanied with our uſual neglect) can do in forty or fifty.

10. To conclude, in the time of this *Work* would our ingenious *Arborator* frequently *incorporate*, mingle, and unite the *Arms* and *Branches* of ſome young and flexible *Trees* which grow in *conſort*, and neer to one another; by entering them into their mutual *barks* with a convenient *inſition:* This, eſpecially, about *Fields*, and *Hedge-rows* for *Fence* and *Ornament*; alſo by bowing, and bending of others, eſpecially *Oak* and *Aſh*, into various *flexures*, *curbs* and *poſtures*, oblig'd to ply themſelves into different *Modes*, which may be done by humbling and binding them down with tough *bands* and *withs*, till the *tenor* of the *ſap*, and cuſtom of being ſo conſtrain'd, did render them apt to grow ſo of themſelves, without power of redreſſing; This courſe would wonderfully accommodate Materials for *Knee-timber* and *Shipping*, the *Wheelwright* and other uſes; conform it to their *Moulds*, and ſave infinite labour, and abbreviate the work of *hewing* and *waſte*,

——*adeo in teneris conſueſcere multum eſt.*

the *Poet*, it ſeems, knew it well, and for what purpoſes,

Continuò in Sylvis magna vi flexa domatur
In burim, & curvi formam accipit Ulmus aratri: Geo. 1.

ſo as it even half made the *Plow* to their hands.

CHAP. XXIX.

Of the Age, Stature, and Felling of Trees.

Felling. 1. IT is not till a *Tree* is arriv'd to his perfect *Age*, and full vigor, that the *Lord* of the *Foreſt* ſhould conſult, or determine concerning a *Felling*. For there is certainly in Trees (as in all things elſe) a time of *Increment*, or growth; a *Status* or ſeaſon when they are at *beſt* (which is alſo that of *Felling*) and a *decrement* or *period* when they *decay*.

To the firſt of theſe they proceed with more, or leſs *velocity*, as they conſiſt of more ſtrict and compacted *particles*, or are of a ſlighter, and more laxed *contexture*; by which they receive a ſpeedier, or ſlower *defluxion* of *Aliment:* This is apparent in *Box*, and *Willow*; the one of a harder, the other of a more tender *ſubſtance:* But as they proceed, ſo they likewiſe continue.

By the *ſtate* of Trees I would ſignifie their utmoſt *effort*, growth, and

and maturity, which are all of them different as to *time*, and *kind*; yet do not I intend by this any *period* or inſtant in which they do not continually either Improve or Decay (the *end* of *one* being ſtill the *beginning* of the *other*) but farther then which their *Natures* do not extend; but immediately (though to our ſenſes *imperceptibly*) through ſome *infirmity* (to which all things ſublunary be obnoxious) dwindle and impair, either through *Age*, defect of *Nouriſhment*, by *ſickneſs*, and decay of principal *parts*; but eſpecially, and more inevitably, when violently invaded by mortal and incurable *Infirmities*, or by what other extinction of their native *heat*, *ſubſtraction*, or *obſtruction* of *Air* and *Moiſture*, which making all *motions* whatſoever to ceaſe and determine, is the cauſe of their final deſtruction.

2. Our honeſt *Countrey*-man, to whoſe *Experience* we have been obliged for ſomething I have lately *Animadverted* concerning the *Pruning* of Trees, does in another *Chapter* of the ſame *Treatiſe* ſpeak of the *Age* of Trees. The *Diſcourſe* is both learned, rational, and full of encouragement: For he does not ſcruple to affirm, That even ſome *Fruit-Trees* may poſſibly arrive to a *thouſand* years of *Age*; and if ſo *Fruit-Trees* whoſe continual bearing does ſo much impair and ſhorten their lives, as we ſee it does their form and beauty; How much longer might we reaſonably imagine ſome hardy and ſlow-growing *Foreſt-trees* may probably laſt? I remember *Pliny* tells us of ſome *Oaks* growing in his time in the *Hercynian* Foreſt, which were thought co-evous with the *World* it ſelf; their roots had even raiſed *Mountains*, and where they encounter'd ſwell'd into goodly *Arches* like the Gates of a *City*: But to our more modern *Author's* calculation for *Fruit-trees* (I ſuppoſe he means *Pears*, *Apples*, &c.) his allowance is *three hundred* years for *growth*, as much for their *ſtand* (as he terms it), and *three hundred* for their *Decay*, which does in the total amount to no leſs then *nine hundred* years. This conjecture is deduc'd from *Apple-Trees* growing in his *Orchard*, which having known for fourty years, and upon diligent enquiry of ſundry aged Perſons of eighty years and more, who remembred them Trees all their time, he finds by comparing their growth with others of that *kind*, to be far ſhort in bigneſs and perfection, (*viz.* by more then two parts of three) yea albeit thoſe other Trees have been much hindred in their ſtature through ill government and ordering.

3. To eſtabliſh this he aſſembles many *Arguments* from the age of *Animals*, whoſe *ſtate* and *decay* double the time of their *increaſe* by the ſame proportion: *If then* (ſaith he) *thoſe frail* Creatures, *whoſe bodies are nothing (in a manner) but a tender rottenneſs, may live to that* age, *I ſee not but a* Tree *of a ſolid ſubſtance, not damnified by* heat *or* cold, *capable* of *and ſubject* to *any kind of ordering or dreſſing, feeding naturally, and from the beginning diſburthen'd of all ſuperfluities, eaſed of, and of his own accord avoiding the cauſes that may annoy him, ſhould double the* life *of other* Creatures *by very many years.* He proceeds, *What elſe are* Trees *in compariſon with the* Earth, *but as* hairs *to the body of* Man? *And it is certain,*

that

that (without some distemper, or forcible cause) the hairs *dure with the* body, *and are esteem'd* excrements *but from their superfluous growth:* So as he resolves upon good *Reason*, that *Fruit-trees* well ordered may live a *thousand years*, and bear *Fruit*, and the longer the more, the greater, and the better (for which an *Instance* also in Mr *Beale*'s *Hereford-shire* Orchards, *pag.*21,22.) because his vigour is proud and stronger, when his years are many. Thus shall you see *old Trees* put forth their *Buds* and *Blossomes* both sooner and more plentifully then *young Trees* by much; *And I sensibly perceive* (saith he) *my young* Trees *to enlarge their Fruit as they grow greater, &c.* And if *Fruit-Trees* continue to this *Age*, how many *Ages* is it to be supposed strong and huge *Timber-trees* will last? whose massie *bodies* require the years of divers *Methusala's* before they determine their days; whose *Sap* is strong and bitter; whose *Bark* is hard and thick, and their substance solid and stiff; all which are defences of health and long life. Their *strength* withstands all forceable *Winds*; their *Sap* of that quality is not subject to *Worms* and tainting; their *Bark* receives seldome or never by casualty any wound; and not only so, but he is free from *Removals*, which are the death of *millions* of Trees; whereas the *Fruit-tree* (in comparison) is little, and frequently blown down; his *Sap* sweet, easily and soon tainted; his *Bark* tender, and soon wounded; and himself used by *Man* as *Man* uses himself; that is, either *unskilfully*, or *carelesly*. Thus he.

4. I might to this add much more, and truly with sufficient probability, that the *Age* of *Timber-trees*, especially of such as be of a compact, *resinous*, or *balsamical* nature (for of this kind are the *Eugh*, *Box*, *Horn-beam*, *White-thorn*, *Oak*, *Walnut*, *Cedar*, *Juniper*, *&c.*) are capable of very long duration and continuance: those of largest *Roots*, longer liv'd then the *shorter*; the *dry*, then the *wet*; and the *gummy*, then the *watry:* For not to conclude from *Pliny*'s *Hercynian* Oaks, or the *Terpentine* Tree of *Idumæa*, which *Josephus* rankes also with the *Creation:* I read of a *Cypress* yet remaining some where in *Persia* neer an old *Sepulchre*, whose *stem* is as large as five men can encompass, the boughs extending fifteen paces every way; This must needs be a very old Tree, believ'd by my *Author* little less then 2500 years of *age:* The particulars were too long to recount. The old *Platanus* set by *Agamemnon*, and the *Herculean* Oaks, the *Laurel* neer *Hippocren*, the *Vatican Ilex*, and old *Lotus* Trees, recorded by *Valerius Maximus*, were famous for their age: St *Hierome* affirms he saw the *Sycomore* that *Zaccheus* climb'd up, to see our *LORD* ride in Triumph to *Jerusalem:* And now in the *Aventine* Mount they shew us the *Malus Medica*, planted by the hand of St *Dominic*: To which add those superannuated *Tilia's* now at *Basil*, and that of *Auspurg*, under whose prodigious *shade* they so often *feast*, and celebrate their *Weddings*; because they are all of them noted for their reverend *Antiquity*; for to such *Trees* it seems they paid *Divine* honours, as the neareſt *Emblems* of Eternity, *& tanquam sacros ex vetustate*, as *Quintilian* speaks: And like to these might that be which is celebrated

celebrated by our *Poet*, neer to another Monument,

——*juxtáque antiqua Cupressus*
Relligione patrum multos servata per annos. Æn. 2.

5. But we will spare our *Reader*, and refer him that has a desire to multiply *examples* of this kind, to those undoubted *Records* our *Naturalist* mentions in his 44. *Chap. Lib.* 16. where he shall read of *Scipio Africanus*'s Olive-trees; *Dianas Lotus*; the overgrown *Myrtil*; the *Vatican* Holm, those of *Tyburtine*, and especially, that neer to *Tusculum*, whose body was thirty five foot about; besides divers others which he there enumerates in a large *Chapter*: And what shall we conjecture of the age of *Xerxes*'s huge *Platanus*, in admiration whereof he staid the march of so many hundred thousand men for so many days: by which the wise *Socrates* was us'd to *swear*? And certainly, a goodly *Tree* was a powerful attractive, when that prudent *Consul Passienus Crispus* fell in love with a prodigious *Beech* of a wonderful age and stature.

6. We have already made mention of *Tiberius*'s *Larch*, and that of the *Float* which wafted *Caligulas Obelisks* out of *Ægypt*, four fathoms in circumference: We read also of a *Cedar* growing in the Island of *Cyprus* which was 130 foot *long*, and 18 in *diameter*; of the *Plane* in *Athens* whose roots extended 36 Cubits farther then the boughs, which were yet exceedingly large; and such another was that most famous Tree at *Veliternus*, whose arms stretch'd out 80 foot from the stem: But these were *solid*: Now if we will calculate from the *hollow*, besides those mention'd by *Pliny* in the *Hercynian* Forest; the *Germans* (as now the *Indians*) had of old some *Punti* or *Canoes* of excavated *Oak* which would well contain thirty, some fourty persons: And the *Lician Platanus* recorded by the *Naturalist*, and remaining long after his days, had a room in it of eighty one feet in compass, adorn'd with *Fountains*, stately *Seats* and *Tables* of stone; for it seems it was so glorious a *Tree* both in body, and head, that *Licinius Mutianus* (three times *Consul*, and Governour of that *Province*) us'd to feast his whole Retinue in it, chusing rather to lodge in it, then in his golden-roofed *Palace*.

7. Compare me then with *these* that nine-fathom'd deep *Tree* spoken of by *Josephus à Costa*; the *Mastick-tree* seen and measur'd by Sir *Francis Drake*, which was four and thirty yards in circuit; and for prodigious height the *two*, and *three hundred foot* unparallel'd *Palms-royal* describ'd by Captain *Ligon* growing in our *Plantations* of the *Barbados*; or those goodly *Masts* of *Fir*, which I have seen, and measur'd, brought from *New England*; not to omit the vast, and incredible bulk of some *Oaks* standing lately in *Westphalia*, whereof *one* serv'd both for a *Castle* and *Fort*; because in this *resention* we will endeavour to give a taste of more fresh observations, and to compare our modern *Timber* with the *Ancient*, and that, not only abroad, but without travelling into forreign Countries for these wonders.

8. What goodly *Trees* were of old *ador'd*, and conſecrated by the *Dryads* I leave to conjecture from the ſtories of our ancient *Britains*, who had they left *Records* of their *prodigies* in this kind, would doubtleſs have furniſh'd us with *examples* as remarkable for the *growth* and *ſtature* of Trees, as any which we have deduc'd from the Writers of forreign places, ſince the remains of what are yet in being (notwithſtanding the havock which has univerſally been made, and the little care to improve our *Woods*) may ſtand in fair competition with any thing that *Antiquity* can produce.

9. There is ſomewhere in *Wales* an *Inſcription* extant, cut into the wood of an old *Beam*, thus

SEXAGINTA PEDES FUERANT IN STIPITE NOSTRO,
EXCEPTA COMA QUÆ SPECIOSA FUIT.

This muſt needs have been a noble *Tree*, but not without later *parallels*; for to inſtance in the ſeveral *ſpecies*, and ſpeak firſt of the bulks of ſome immenſe *Trees*; there was ſtanding an old and decay'd *Cheſs-nut* at *Fraiting* in *Eſſex*, whoſe very ſtump did yield thirty ſizable load of *Logs*; I could produce you another of the ſame kind in *Gloceſterſhire* which contains within the bowels of it a pretty wain-ſcotted Room inlighten'd with windows, and furniſh'd with ſeats, *&c.* to anſwer the *Lician Platanus* lately mention'd.

10. But whileſt I am on this period; ſee what a *Tilia* that moſt learn'd, and obliging perſon, D. *Brown* of *Norwich*, deſcribes to me in a *Letter* juſt now receiv'd.

An extraordinary large, and ſtately Tilia, Linden *or* Lime-tree, *there groweth at* Depeham *in* Norfolk, *ten miles from* Norwich *whoſe meaſure is this. The compaſs in the leaſt part of the* Trunk *or body about two yards from the ground is at leaſt* eight yards *and* half: *about the root nigh the earth*, ſixteen yards; *about half a yard above* that, *neer twelve* yards *in circuit: The* height *to the uppermoſt boughs about* thirty yards, *which ſurmounts the famous* Tilia *of* Zurich *in* Switzerland; *and uncertain it is whether in any* Tilicetum, *or* Lime-walk *abroad it be conſiderably exceeded: Yet was the firſt motive I had to view it not ſo much the largeneſs of the* Tree, *as the general opinion that no man could ever name it; but I found it to be a* Tilia fæmina; *and (if the diſtinction of* Bauhinus *be admitted from the greater, and leſſer* leaf) *a* Tilia Platyphyllos *or* Latifolia; *ſome* leaves *being* three inches *broad*; *but to diſtinguiſh it from others in the* Country, *I call'd it* Tilia Coloſſæa Depehamenſis. *Thus the* Doctor.

A *Poplar-tree* not much inferior to this he informs me grew lately at *Harlingly Thetford*, at Sir *William Gawdies* gate, blown down by that terrible *Hurrocan* about four years ſince.

11. I am told of a very *Withy-tree* to be ſeen ſomewhere in *Bark-ſhire* which is increaſed to a moſt ſtupendious bulk: But *theſe* for arriving haſtily to their *Acme*, and *period*, and generally not ſo conſiderable for their uſe; I paſs to the *Aſh*, *Elm*, *Oak*, *&c.*

There

There were of the *firſt* of theſe divers which meaſur'd in length *one hundred* and *thirty two foot*, ſold lately in *Eſſex* : And in the *Manor* of *Horton* (to go no farther then the *Pariſh* of *Ebſham* in *Surrey*, belonging to my Brother *Richard Evelyn* Eſq.) there are *Elms* now ſtanding in good numbers, which will bear almoſt three foot ſquare for more then forty foot in height, which is (in my judgement) a very extraordinary matter. They grow in a moiſt *Gravel*, and in the *Hedge-rows*.

Not to inſiſt upon *Beech*, which are frequently very large; there are *Oaks* of forty foot high; and five foot *diameter* yet flouriſhing in divers old *Parks* of our *Nobility* and *Gentry*.

A large and goodly *Oak* there is at *Reedham* in Sir *Richard Berneys* Park of *Norfolk*, which I am inform'd was valu'd at forty pounds the *Timber*, and twelve pounds the lopping wood.

12. Nor are we to over-paſs thoſe memorable Trees which ſo lately flouriſhed in *Dennington Park* neer *Newberry* : amongſt which three were moſt remarkable from the ingenious *Planter*, and *dedication* (if *Tradition* hold) the famous Engliſh *Bard*, *Jeofry Chaucer*; of which one was call'd the *Kings*, another the *Queens*, and a third *Chaucers-Oak*. The *firſt* of theſe was fifty foot in height before any *bough* or *knot* appear'd, and cut five foot ſquare at the *butt end*, all clear *Timber*. The *Queens* was fell'd ſince the *Wars*, and held forty foot excellent Timber, ſtraight as an arrow in growth and grain, and cutting four foot at the *ſtub*, and neer a yard at the top; beſides a fork of almoſt ten foot clear timber above the ſhaft, which was crown'd with a ſhady *tuft* of boughs, amongſt which, ſome were on each ſide curved like *Rams-horns*, as if they had been ſo induſtriouſly bent by hand. This *Oak* was of a kind ſo excellent, cutting a grain clear as any *Clap-board* (as appear'd in the *Wainſcot* which was made thereof) that a thouſand pities it is ſome *ſeminary* of the *Acorns* had not been propagated, to preſerve the ſpecies. *Chaucers Oak*, though it were not of theſe dimenſions, yet was it a very goodly Tree : And this account I receiv'd from my moſt honour'd friend *Phil. Packer* Eſq. whoſe *Father* (as now the *Gentleman* his *Brother*) was proprietor of this *Park* : But that which I would farther remark, upon this occaſion, is, the *bulk*, and *ſtature* to which an *Oak* may poſſibly arrive within leſs then two *hundred* year, ſince it is not ſo long that our *Poet* flouriſh'd (being in the *Reign* of King *Edward* the *fourth*) if at leaſt he were indeed the *Planter* of thoſe *Trees*, as 'tis confidently affirm'd. I will not labour much in this enquiry; becauſe an *implicit* faith is here of great encouragement; and it is not to be conceiv'd what *Trees* of a good kind, and apt *ſoil*, will perform in a few years; and this (I am inform'd) is a ſort of *gravelly clay* moiſtn'd with ſmall and frequent ſprings.

13. There was in *Cuns-burrow* (ſometimes belonging to my Lord of *Dover*) ſeveral *Trees* bought by a *Couper*, of which he made *ten pound per yard* for three or four yards, as I have been credibly aſſur'd : But where ſhall we parallel that mighty *Tree* which furniſh'd the *Main-maſt* to the *Sovereign* of our *Seas*, which

being one *hundred foot* long ſave one, bare *thirty five* inches *diameter*. Yet was this exceeded in proportion, and uſe, by that *Oak* which furniſh'd thoſe prodigious *beams* that lye thwart her. The *diameter* of this *Tree* was four foot nine *inches*, which yielded four ſquare beams of *four and forty* foot long each of them. The *Oak* grew about *Framingam* in *Suffolk*; and indeed it would be thought fabulous, but to recount only the extraordinary dimenſions of ſome *Timber-trees* growing in that *County*; and of the exceſſive ſizes of theſe *materials*, had not mine own hands meaſur'd a *Table* (more then once) of above *five* foot in breadth, *nine* and an *half* in length, and *ſix* inches thick, all intire and clear: This plank cut out of a *Tree* fell'd down by my *Fathers* order, was made a *Paſtry-board*, and lyes now on a frame of ſolid *Brick-work* at *Wotton* in *Surrey*, where it was ſo placed before the *room* was finiſh'd about it, or wall built, and yet abated by *one foot* ſhorter, to confine it to the intended dimenſions of the place: for at firſt, it held this breadth, full *ten foot* and an *half* in length.

14. To theſe I might add that ſuprannuated *Eugh-tree* growing now in *Braburne Church-yard*, not far from *Scots-hall* in *Kent*; which being 58 *foot* 11 *inches* in the *circumference*, will bear neer *twenty* foot *diameter*, as it was meaſur'd firſt by my ſelf imperfectly, and then more exactly for me, by order of the Right Honourable Sir *George Carteret*, *Vice-Chamberlain* to his *Majeſty*, and *Treaſurer* of the *Navy*: not to mention the goodly *planks*, and other conſiderable pieces of ſquar'd, and clear *Timber*, which I obſerv'd to lye about it, that had been *hew'd*, and *ſawn* out of ſome of the *Arms* only, torn from it by impetuous winds. Such another *Monſter* I am inform'd is alſo to be ſeen in *Sutton Church-yard* neer *Winchester*: But theſe (with infinite others, which I am ready to produce) might fairly ſuffice to vindicate, and aſſert our *Propoſition*, as it relates to *modern examples*, and ſizes of *Timber-trees*, comparable to any of the *Ancients*, remaining upon laudable and unſuſpected *Record*; were it not great ingratitude to conceal a moſt induſtrious, and no leſs accurate *Accompt*, which comes juſt now to my hands from Mr. *Halton*, Auditor to the Right Honourable, the moſt Illuſtrious, and Noble, *Henry Howard* of *Norfolk*.

In Sheffield *Lordſhip*.

The names of the perſons *who gave intelligence of the* particulars. Ed. Rawſon.

15. In the *Hall Park*, neer unto *Rivelin*, ſtood an Oak which had eighteen yards without bough, or knot; and carried a *yard* and *ſix inches* ſquare at the ſaid height, or length, and not much bigger neer the *root*: Sold twelve years ago for 11 *li*. *Conſider the* diſtance *of the* place, *and* Country, *and what ſo prodigious a* Tree *would have been* worth *neer* London.

Cap. Bullock.

In *Firth*'s *Farme* within *Sheffield Lordſhip*, about twenty years ſince, a *Tree* blown down by the *wind*, made or would have made two *Forge-hammer-beams*, and in thoſe, and the other wood of that Tree, there was of worth, or made 50 *li*. and *Godfrey Frogat* (who is now

now living) did oft ſay, he loſt 30 *li.* by the not buying of it.

A *Hammer-beam* is not leſs then 7½ yards long, and 4 foot ſquare at the *barrel.*

In *Sheffield Park*, below the *Manor*, a *Tree* was ſtanding which was ſold by one *Giffard* (ſervant to the then *Counteſs* of *Kent*) for 2 *li.* 10 *s.* to one *Nich. Hicks*; which yielded of ſawn *Wair* fourteen hundred, and by eſtimation, twenty *Chords* of wood.

A *Wair* is two yards long, and one foot broad, ſixſcore to the hundred: ſo that, in the ſaid *Tree* was 10080 foot of *Boards*; which, if any of the ſaid Boards were more then *half-inch* thick, renders the thing yet more admirable. Ed. Morphy, *Wood-ward.*

In the upper end of *Rivelin* ſtood a *Tree*, call'd the *Lords-Oak*, of twelve yards *about*, and the *top* yielded twenty one *Chord*, cut down about thirteen years ſince.

In *Sheffield Park An.* 1646. ſtood above 100 *Trees* worth 1000 *li.* and there are yet two worth above 20 *li. ſtill note the place, and market.*

In the ſame *Park*, about eight years ago, *Ralph Archdall* cut a Tree that was thirteen foot *diameter* at the *Kerf*, or cutting place neer the Root.

In the ſame Park two years ſince Mr. *Sittwell*, with *Jo. Magſon* did chuſe a *Tree*, which after it was cut, and laid aſide flat upon a level ground, *Sam. Staniforth* a *Keeper*, and *Ed. Morphy*, both on horſe-back, could not ſee over the *Tree* one anothers *Hat-crowns.* This *Tree* was afterwards ſold for 20 *li.*

In the ſame *Park*, neer the old foord, is an *Oak-tree* yet ſtanding, of ten yards *circumference.*

In the ſame *Park*, below the *Conduit* Plain, is an *Oak-tree* which bears a *top*, whoſe *boughs* ſhoot from the *boal* ſome fifteen, and ſome ſixteen yards. Jo. Halton.

Then admitting 15½ yards for the common, or mean extent of the *boughs* from the *boal*, which being doubled is 31 yards; and if it be imagin'd for a *diameter*, becauſe the *Ratio* of the *diameter* to the *circumference* is $\frac{113}{355}$ it follows 113.355 :: 31.97 $\frac{44}{113}$ *yards* which is the *circumference* belonging to this *diameter.*

Then farther it is demonſtrable in *Geometry*, that half the *diameter* multiplied into half the *circumference* produces the *Area* or quantity of the *Circle*, and that will be found to be 754 $\frac{347}{452}$ which is 755 ſquare yards *ferè.*

Then laſtly, if a *Horſe* can be limited to three ſquare *yards* of ground to ſtand on (which may ſeem a competent proportion of three yards long, and one yard broad) then may 251 *Horſe* be well ſaid to ſtand under the ſhade of this *Tree.* But of *Scotch Cattle* certainly, more then twice that number.

Work-

Workſopp-Park.

16. In this *Park*, at the corner of the *Bradſhaw*-rail, lyeth the *boal* of an *Oak-tree* which is twenty nine foot about, and would be found thirty, if it could be juſtly meaſur'd; becauſe it lyeth upon the ground; and the length of this boal is ten foot, and no arm, nor branch upon it. Kenhelm Homer.

In the ſame *Park*, at the white-gate, a *Tree* did ſtand that was from bough end to bough end (that is, from the extream ends of two oppoſite boughs) 180 foot; which is witneſs'd by *Jo. Magſon* and *Geo. Hall*, and meaſur'd by them both. Jo. Magſon. Geo. Hall.

Then becauſe 180 foot, or 60 yards is the *diameter*; 30 yards will be the *ſemidiameter*: And by the former *Analogies*

113. 355 :: 60. $188\frac{1}{2}$

and

1. 30 :: $94\frac{1}{4}$. $2827\frac{1}{2}$

That is, the *Content* of ground upon which this Tree *perpendicularly* drops, is above 2827 ſquare yards, which is above half an *Acre* of ground: And the aſſigning three ſquare yards (as above) for an *Horſe*, there may 942 be well ſaid to ſtand in this compaſs.

In the ſame *Park* (after many hundreds ſold, and carried away) there is a *Tree* which did yield *quarter-cliff bottoms* that were a yard ſquare: and there is of them to be ſeen in *worksopp*, at this day, and ſome *Tables* made of the ſaid *quarter-cliff* likewiſe. Jo. Magſon.

In the ſame *Park*, in the place *there* call'd the *Hawks-neſt*, are *Trees* forty foot long of *Timber* which will bear two foot ſquare at the top-end or height of forty foot.

If then a *ſquare* whoſe ſide is two foot, be inſcribed in a *Circle*, the proportions at that *Circle* are

	feet
Diameter	2 : 8284
Circumference	8 : 8858
Area	6 : 2831

And becauſe a *Tun* of *Timber* is ſaid to contain forty ſolid feet: one of theſe *Columns* of *Oak* will contain above ſix *Tun* of *Timber* and a quarter: in this computation taking them to be *Cylinders*, and not tapering like the *ſegment* of a *Cone*.

Welbeek-Lane.

17. The *Oak* which ſtands in this *Lane* call'd *Grindal-Oak* hath at theſe ſeveral diſtances from the ground theſe *Circumferences*

	foot	*foot*	*inch*
at	1	33 :	01
at	2	28 :	05
at	6	25 :	07

The breadth is from bough-end to bough-end (*i.*) *diametri-*

cally

cally 88 foot; the height from the ground to the top-moſt bough 81 foot [this *dimenſion* taken from the proportion that a *Gnomon* bears to the ſhadow] there are three *Arms* broken off and gone, and eight very large ones yet remaining, which are very freſh and good *Timber*.

88 foot is $29\frac{1}{3}$ yards, which being in this caſe admitted for the *diameter* of a *circle*, the *ſquare yards* in that *circumference* will be 676 *ferè*; and then allowing three yards (as before) for a beaſt, leaves 225 beaſts, which may poſſibly ſtand under this *Tree*.

But the *Lords-Oak* that ſtood in *Rivelin* was in *diameter* three yards, and twenty eight inches; and exceeded this in *circumference* three feet at one foot from the ground.

Shire-Oak.

Shire-Oak is a *Tree* ſtanding in the ground late Sir *Tho. Hewets*, about a mile from *Worksopp-Park*, which drops into three *Shires*, viz. *York*, *Nottingham*, and *Derby*, and the diſtance from bough-end to bough-end is ninety foot, or thirty yards. Hen. Homer.

This circumference will contain neer 707 ſquare-yards, ſufficient to ſhade 235 *horſe*.

Thus far the accurate M. *Halton*.

18. Being inform'd by a *perſon* of credit, that an *Oak* in *Sheffield-Park*, call'd the *Ladies-Oak*, fell'd, contain'd forty two *Tun* of *Timber*, which had *Arms* that held at leaſt four foot ſquare for ten yards in length; the *Body* ſix foot of clear *Timber*: That in the ſame *Park* one might have choſen above 1000 *Trees* worth above 6000 *li.* another 1000 worth 4000 *li. & ſic de cæteris*: To this M. *Halton* replies, That it might poſſibly be meant of the *Lords-Oak* already mention'd to have grown in *Rivelin*: For now *Rivelin* it ſelf is totally deſtitute of that iſſue ſhe once might have glo-ried in of *Oaks*; there being only the *Hall-park* adjoyning which keeps up with its number of *Oaks*. And as to the computation of 1000 *Trees* formerly in *Sheffield-Park* worth 6000 *li.* it is believ'd there were a *thouſand* much above that value; ſince in what is now inclos'd, it is evident touching 100, worth a *thouſand pounds*.

My worthy friend *Leonard Pinckney* Eſq. firſt *Clerk* of his Majeſties *Kitchin* (from whom I receiv'd the firſt hints of many of theſe particulars) did aſſure me, that one *John Garland* built a very handſome *Barne* containing five *Baies*, with *Pan*, *Poſts*, *Beams*, *Spars*, &c. of one ſole *Tree* growing in *Worksop-park*. But theſe ſhall ſuffice, I ſhould never finiſh to purſue theſe *Inſtances* through our once goodly *Magazines* of *Timber* for all uſes, growing in this our native *Country*, comparable (as I ſaid) to any we can produce of *elder times*; and that not only (though chiefly) for the encou-ragement of *Planters*, and *Preſervers* of one of the moſt excel-lent, and neceſſary *Materials* in the *World* for the benefit of Man; but to evince the continu'd *vigor* of *Nature*, and to reproach the

want

want of *Induſtry* in this *Age* of ours; and (that we may return to the *Argument* of this large *Chapter*) to aſſert the *procerity* and *ſtature* of *Trees* from their very great *Antiquity:* For certainly if that be true, which is by divers affirmed concerning the *Quercetum* of *Mambre*, recorded by *Euſebius* to have continued till the time of *Conſtantine* the Great, we are not too prejudicately to cenſure what has been produc'd for the proofs of their *Antiquity*; nor for my part do I much queſtion the *Authorities*: But let this ſuffice; what has been produc'd being only an hiſtorical *ſpeculation*, of more *encouragement* haply then other *uſe*, but ſuch as was pertinent to the *ſubject* under conſideration, as well as what I am about to add concerning the *Texture* and *ſimilar* parts of the body of *Trees*, which may alſo hold in *ſhrubs*, and other *lignous* plants, becauſe it is both a *curious* and *Rational* account of their *Anatomization*, and worthy of the ſagacious *Inquiry* of that incomparably learned Perſon Dr *Goddard*, as I find it entered amongſt other of thoſe precious *Collections* of this *Illuſtrious Society*.

19. The *Trunk*, or bough of a *Tree* being cut *tranſverſely* plain and ſmooth, ſheweth ſeveral *Circles* or *Rings* more or leſs *Orbicular*, according to the external figure, in ſome *parallel* proportion, one without the other, from the *centre* of the *Wood* to the inſide of the *Bark*, dividing the whole into ſo many *circular* ſpaces. Theſe *Rings* are more large, groſs, and diſtinct in colour and ſubſtance in ſome kind of *Trees*, generally in ſuch as grow to a great bulk in a ſhort time, as *Fir*, *Aſh*, &c. ſmaller or leſs diſtinct in thoſe that either not at all or in a longer time grow great, as *Quince*, *Holly*, *Box*, *Lignum-vitæ*, *Ebony*, and the like ſad colour'd and hard *woods*; ſo that by the largeneſs or ſmallneſs of the *Rings*, the quickneſs or ſlowneſs of the growth of any Tree may perhaps at certainty be eſtimated.

Theſe *ſpaces* are manifeſtly broader on the one ſide then on the other, eſpecially the more outer, to a double proportion, or more; the inner being neer an equality.

It is aſſerted, that the larger parts of theſe *Rings* are on the *South* and *ſunny* ſide of the *Tree* (which is very rational and probable) inſomuch that by cutting a Tree *tranſverſe*, and drawing a *diametre* through the broadeſt and narroweſt parts of the *Rings*, a *Meridian* line may be deſcribed.

The outer ſpaces are generally narrower then the inner, not only on their narrower ſides, but alſo on their broader, compared with the ſame ſides of the inner: Notwithſtanding which, they are for the moſt part, if not altogether, bigger upon the whole account.

Of theſe ſpaces, the *outer* extremities in *Fir*, and the like *woods*, that have them larger and groſſer, are more denſe, hard, and compact; the inner more ſoft and ſpungy; by which difference of ſubſtance it is that the *Rings* themſelves come to be diſtinguiſhed.

According as the bodies and boughs of *Trees*, or ſeveral parts of the ſame, are bigger or leſſer, ſo is the *number* as well as the *breadth* of the *circular* ſpaces greater or leſs; and the like according to the *age*, eſpecially the number. It

It is commonly and very probably aſſerted, That a Tree gains a *new* one every year. In the body of a great *Oak* in the *New-Foreſt*, cut *tranſverſly even* (where many of the Trees are accounted to be ſome hundreds of years old) three and four hundred have been diſtinguiſh'd. In a *Fir-tree*, which is ſaid to have juſt ſo many rows of boughs about it as it is of years growth, there has been obſerved juſt *one* leſs immediately above one row, then immediately below: Hence ſome probable account may be given of the difference between the outer and the inner parts of the *Rings*, that the outermoſt being newly produced in the *Summer*, the exterior ſuperficies is condens'd in the *Winter*.

20. In the young branches and twigs of *Trees* there is a *pith* in the middle, which in ſome, as *Aſh*, and eſpecially *Elder*, equals or exceeds in dimenſions the reſt of the ſubſtance, but waxes leſs as they grow bigger, and in the great boughs and trunk ſcarce is to be found: This gives way for the growth of the inward *Rings*, which at firſt were leſs then the outer (as may be ſeen in any *ſhoot* of the firſt year) and after grow thicker, being it ſelf *abſum'd*, or perhaps converted into *Wood*; as it is certain *Cartilages* or *Griſtles* are into bones (in the bodies of *Animals*) from which to ſenſe they differ even as much as pith from *Wood*.

Theſe *Rings* or ſpaces appearing upon tranſverſe *Section* (as they appear *elliptical* upon *oblique*, and ſtrait lines upon direct *Section*) are no other then the extremities of ſo many *Integuments* inveſting the whole Tree, and (perhaps) all the boughs that are of the ſame age with any of them, or older.

In the *growth* of *Trees Augmentation* in all dimenſions is acquired, not only by *Acceſſion* of a new *Integument* yearly, but alſo by the *Reception* of nouriſhment into the *Pores*, and ſubſtance of the reſt, upon which they alſo become thicker; not only thoſe towards the middle, but alſo the reſt, in a thriving Tree: Yet the principal growth is between the *Bark* and *Body*, by *Acceſſion* of a new *Integument* yearly, as hath been mentioned: Whence the cutting of the Bark of any Tree or Bough round about will certainly kill it.

The *Bark* of a Tree is diſtinguiſhed into *Rings* or Integuments no leſs then the *Wood*, though much ſmaller or thinner, and therefore not diſtinguiſhable except in the thick barks of great old Trees, and toward the *inſide* next the *Wood*; the outer parts drying and breaking with innumerable *fiſſures*, growing wider and deeper, as the body of the *Tree* grows bigger, and mouldering away on the out ſide.

Though it cannot appear by reaſon of the continual decay of it upon the account aforeſaid; yet it is probable the *Bark* of a Tree hath had ſucceſſively as many *Integuments* as the *wood*; and that it doth grow by acquiſition of a *new one* yearly on the inſide, as the wood doth on the out-ſide; ſo that the chief way, and conveyance of nouriſhment to both the *Wood* and the *Bark*, is between them both.

The leaſt *Bud* appearing on the body of a *Tree* doth as it

were make *perforation* through the ſeveral *Integuments* to the middle, or very neer; which part is, as it were, a *Root* of the bough into the body of the Tree; and after becomes a *knot*, more hard then the other *wood*: And when it is larger, manifeſtly ſhewing it ſelf alſo to conſiſt of ſeveral *Integuments*, by the *circles* appearing in it, as in the body: more hard, probably; becauſe ſtreightned in room for growth; as appears by its diſtending, buckling, as it were, the *Integuments* of the *wood* about it; ſo implicating them the more; whence a *knotty* piece of *wood* is ſo much harder to cleave.

It is probable, that a *Cience* or Bud, upon *Graffing*, or *Inoculating*, doth, as it were, *Root* it ſelf into the *ſtock* in the ſame manner as the *branches*, by producing a kind of knot. Thus far the accurate *Doctor*.

20. To this might be ſubjoyn'd the *vegetative* motion of *Plants*, with the *diagrams* of the *Jeſuite Kercher*, where he diſcourſes of their ſtupendious *Magnetiſms*, *&c.* could there any thing material be added to what has already been ſo ingeniouſly inquir'd into: therefore let us proceed to their *Felling*.

Felling.

21. It ſhould be in this *ſtatus*, vigour and perfection of Trees, that a *Felling* ſhould be celebrated; ſince whiles our *Woods* are *growing* it is pity, and indeed too ſoon; and when they are *decaying*, too late: I do not pretend that a man (who has occaſion for *Timber*) is obliged to attend ſo many ages ere he fell his Trees; but I do by this infer, how highly neceſſary it were, that men ſhould perpetually be *planting*; that ſo *poſterity* might have Trees fit for their ſervice of *competent*, that is, of a *middle* growth and age, which it is impoſſible they ſhould have, if we thus continue to deſtroy our *Woods*, without this providential *planting* in their ſtead, and *felling* what we do cut down, with great diſcretion, and regard of the future.

22. Such therefore as we ſhall perceive to *decay* are firſt to be picked out for the *Ax*; and then thoſe which are in their *ſtate*, or approaching to it; but the very thriving, and manifeſtly improving, indulg'd as much as poſſible.

23. The time of the *year* for this deſtructive *work* is not uſually till about the end of *April* (at which ſeaſon the *bark* does commonly riſe freely) though the opinions and practice of men have been very different: *Vitruvius* is for an *Autumnal Fall*; others adviſe *December* and *January*: *Cato* was of opinion *Trees* ſhould have firſt born their *Fruit*, or, at leaſt, not till full *ripe*, which agrees with that of the *Architect*: And though Timber *unbarked* be indeed more obnoxious to the *Worm*, and to contract ſomewhat a darker hue (which is the reaſon ſo many have commended the *ſeaſon* when it will moſt freely *ſtrip*) yet were this to be rather conſider'd for ſuch *Trees* as one would leave *round*, and *unſquar'd*; ſince we finde the wilde *Oak*, and many other ſorts, *fell'd* over late, and when the *ſap* begins to grow proud, to be very ſubject to the *worm*; whereas being cut about mid-*winter* it neither *caſts*, *rifts*, nor *twines*; becauſe the cold of the *winter* does both

both dry, and conſolidate; whiles in *ſpring*, and when pregnant, ſo much of the virtue goes into the *leaves* and *branches:* Happy therefore were it for our *Timber*, ſome real *Invention* of *Tanning* without ſo much *Bark* (as the Honourable Mr *Charles Howard* has moſt ingeniouſly offer'd) were become univerſal, that Trees being more early fell'd, the *Timber* might be better *ſeaſon'd* and condition'd for its various *Uſes*. But as the cuſtom is, men have now time to *fell* their *woods*, even from *mid-winter* to the *ſpring*; but never any after the Summer *Solſtice*.

24. Then for the *Age* of the *Moon*, it has religiouſly been obſerv'd; and that *Dianas* preſidency in *Sylvis* was not ſo much celebrated to credit the *fictions* of the *Poets*; as for the dominion of that moiſt *Planet*, and her influence over *Timber:* For my part, I am not ſo much inclin'd to theſe *Criticiſms*, that I ſhould altogether govern a *Felling* at the pleaſure of this mutable *Lady*; however there is doubtleſs ſome regard to be had,

Nec fruſtra ſignorum obitus ſpeculamur & ortus.

The *old Rules* are theſe:

Fell in the *decreaſe*, or four days after *conjunction* of the two great *Luminaries*; ſome the laſt *quarter* of it; or (as *Pliny*) in the very article of the *change*, if poſſible; which hapning (ſaith he) in the laſt day of the Winter *Solſtice*, that *Timber* will prove *immortal:* At leaſt ſhould it be from the twentieth to the *thirtieth* day, according to *Columella: Cato* four days after the *Full*, as far better for the growth: But all *viminious* Trees *ſilente Lunâ*; ſuch as *Sallies*, *Birch*, *Poplar*, &c. *Vegetius* for *Ship-timber*, from the 15th, to the 25th, the *Moon* as before; but never during the *Increaſe*, Trees being then moſt abounding with moiſture, which is the only ſource of putrifaction.

25. Then for the *Temper*, and time of *day:* The *wind* low, neither *Eaſt* nor *Weſt*; neither in *froſty*, *wet* or *dewy* weather; and therefore never in a Fore-noone. Laſtly, touching the *ſpecies*; Fell *Fir* when it begins to ſpring; not only becauſe it will then beſt quit its *coat* and ſtrip; but for that they hold it will never decay in *water*; which howſoever *Theophraſtus* deduce from the old Bridge made of this material over a certain River in *Arcadia*, cut in this *ſeaſon*, is hardly ſufficient to ſatisfie our inquiry.

26. Previous to this work of *Felling* is the advice of our Country-man *Markham*, and it is not to be rejected: Survey (*ſaith he*) your *Woods* as they ſtand immediately after *Chriſtmas*, and then divide the *ſpecies* in your mind; (I add, rather in ſome Note Book, or *Tablets*) and conſider for what *purpoſes* every ſeveral *kind* is moſt *uſeful:* After this, reckon the *bad* and *good* together, ſo as one may put off the other, without being forc'd to glean your *Woods* of all your beſt *Timber*. This done (or before) you ſhall acquaint your ſelf with the *marketable prices* of the *Country* where your *Fell* is made, and that of the ſeveral *ſorts*; as what ſo many *inches*, or *foot ſquare* and *long*, is worth for the ſeveral imployments: What *planks?* what other ſcantlings for ſo many

Spoaks, *Naves*, *Rings*, *Pales*, *Spars*, *&c.* allowing the *waſte* for the charges of *Felling*, *&c.* all which you ſhall *compute* with greater certainty, if you have leiſure, and will take the pains to examine ſome of the *Trees* either by your own *Fathom*; or (more accurately) by *girting* it about with a *ſtring*, and ſo reducing it to the *ſquare*, *&c.* by which means you may give a neer gueſs: or, you may mark ſuch as you intend to *fell*; and then begin your *ſale* about *Candlemas* till the *Spring*; before which you muſt not (according as our *Cuſtom* is) lay the *Ax* to the *Root*; though ſome, for particular imployments, as for *Timber* to make *Plows*, *Carts*, *Axel-trees*, *Naves*, *Harrows*, and the like *Husbandry-tools*, do frequently cut in *October*.

Being now entering with your *Work-men*, one of the firſt, and moſt principal things is, the skilful *disbranching* of the *Boal* of all ſuch *Arms* and *Limbs* as may endanger it in the *Fall*, wherein much forecaſt and skill is requir'd of the *Wood-man*; ſo many excellent *Trees* being utterly ſpoiled for want of this only conſideration: And therefore in arms of *Timber* which are very great, chop a *nick* under it cloſe to the *Boal*, ſo meeting it with the down-right ſtrokes, it will be cut without *ſplicing*.

27. Some there are who cut a *kerfe* round the body, almoſt to the very *pitch*, or heart, and ſo let it remain a while; by this means to drain away the moiſture, which will diſtill out of the wounded *Veins*, and is chiefly good for the *moiſter* ſort of Trees: And in this work the very *Ax* will well tell you the difference of the *Sex*; the *Male* being ſo much harder, and browner then the *Female*: But here (and wherever we ſpeak thus of *Plants*) you are to underſtand the *analogical*, not *proper* diſtinction. Fell as *cloſe* to the *ground* as poſſible may be, if you deſign a *renaſcency* from the *roots*; unleſs you will *grub* for a total deſtruction, or the uſe of that part we have already mention'd, ſo far ſuperiour in goodneſs to what is more remote from the *Root*. Some are of opinion, that the *ſeedling Oak* ſhould never be cut to improve his *Boal*; becauſe, ſay they, it produces a reddiſh wood not ſo acceptable to the *Work-man*; and that the *Tree* which grows on the *head* of his *Mother* does ſeldom prove good *Timber*: It is obſerv'd, indeed, that *one* foot of *Timber* neer the *Root* (which is the proper *kerfe*, or cutting place) is worth *three* farther off: And haply, the *ſucceſſor* is more apt to be tender, then what was cut off to give it place; but let this be inquir'd into at leiſure.

28. When your *Tree* is thus proſtrate, ſtrip off the *Bark*; and ſet it *ſo* as it may beſt dry; then cleanſe the *Boal* of the *Branches* which were left, and *ſaw* it into *lengths* for the *ſquaring*, to which belongs the *Meaſure*, and *Girth* (as our *Work-men* call it) which I refer to the *Buyer*, and to many ſubſidiary *Books* lately *printed*, wherein it is taught by a very familiar and eaſie Method: A *Tun* of *Timber* is forty *ſolid* feet, a *load* fifty.

29. If you are to remove your *Timber*, let the *Dew* be firſt *off*, and the *South-wind* blow before you *draw* it: Neither ſhould you by any means put it to uſe for three, or four *moneths* after, unleſs great

great neceſſity urge you, as it did *Duilius*, who in the *Punic* War built his *Fleet* of *Timber* before it was *ſeaſon'd*, being not above two moneths from the very *Felling* to the Launching: and as were alſo thoſe *Navies* of *Hiero* after forty days; and that of *Scipio*, in the third *Carthaginean* War, from the very *Foreſt* to the *Sea*. *July* is a good time for bringing home your *fell'd Timber*.

30. To make excellent *Boards* and *Planks*, 'tis the advice of ſome, you ſhould *Bark* your *Trees* in a fit ſeaſon, and ſo let them ſtand *naked* a full year before the *felling*; and in ſome caſes, and grounds, it may be profitable: But let theſe, with what has been already ſaid in the foregoing *Chapters* of the ſeveral *kinds*, ſuffice for this *Article*: I ſhall add one *Advertiſement* of *Caution* to thoſe *Noble perſons*, and others who have *Groves* and *Trees* of ornament neer their *houſes*, and in their *Gardens* in *London*, and the *Circle* of it; eſpecially, if they be of great *ſtature*, and well grown; ſuch as are the *Groves* in the ſeveral *Inns* of *Court*; nay, even that (comparatively, new *Plantation*) in my Lord of *Bedfords* Garden, *&c.* and wherever they ſtand in the more interiour parts of the *City*; that they be not over haſty, or by any means perſwaded to cut down any of their *old Trees*, upon hope of new, more flouriſhing *Plantations*; thickning, or repairing deformities; becauſe they grew ſo well when firſt they were ſet: It is to be conſider'd how exceedingly that pernicious *ſmoak* of the *Sea-coal* is increas'd *in* and about *London* ſince they were firſt *planted*, and the buildings environing them, and incloſing it in amongſt them, which does ſo univerſally contaminate the *Air*, that what *Plantations* of *Trees* ſhall be now begun in any of thoſe places will have much ado, great difficulty, and require a long time, to be brought to any tolerable perfection: Therefore let them make much of what they have; and though I diſcourage none, yet I can animate none to *cut* down the *old*.

CHAP. XXX.

Of Timber *the* Seaſoning *and* Uſes, *and of* Fuel.

Seaſoning.

WE have before ſpoken concerning ſome preparations of *ſtanding Trees* deſign'd for *Timber*, by a half-cutting, diſbarking, and the ſeaſons of *drawing*, and *uſing* it.

1. Lay up your *Timber* very dry, in an airy place (yet out of the *Wind*, or *Sun*) and not ſtanding upright, but lying along one piece upon another, interpoſing ſome ſhort *blocks* between them, to preſerve them from a certain *mouldineſs* which they uſually contract while they *ſweat*, and which frequently produces a kind of *fungus*, eſpecially if there be any *ſappy* parts remaining.

2. Some there are yet, who keep their *Timber* as moiſt as they can, by *ſubmerging* it in *Water*, where they let it imbibe to hinder the

th e *cleaving*; and this is good in *Fir*, both for the better *ſtripping* an d *ſeaſoning*.

3. Some again commend *Buryings* in the *Earth*; others in *Wheat*; and there be ſeaſonings of the *Fire*, as for the ſcorching and hardning of *Piles* which are to ſtand either in the *water*, or the *earth*: Thus do all the *Elements* contribute to the Art of *Seaſoning*.

4. And yet even the greeneſt *Timber* is ſometimes deſirable for ſuch as *Carve* and *Turn*; but it choaks the teeth of our *Saws*; and for *Doors*, *Windows*, *Floors*, and other cloſe Works, it is altogether to be rejected; eſpecially where *Walnut-tree* is the *material*, which will be ſure to ſhrink: Therefore it is beſt to chuſe ſuch as is of *two* or *three* years *ſeaſoning*, and that is neither moiſt nor over-dry; the *mean* is beſt. Sir *Hugh Plat* informs us that the *Venetians* uſe to burn and ſcorch their *Timber* in a flaming *fire*; continually turning it round with an *Engine*, till they have gotten upon it an hard, black, *coaly* cruſt; and the *ſecret* carries with it great probability; for that the wood is brought by it to ſuch a hardneſs and drineſs, *ut cùm omnis putrifactio incipiat ab humido*, nor earth nor water can penetrate it; I my ſelf remembring to have ſeen *Charcoals* dug out of the ground amongſt the ruines of ancient buildings, which have in all probability lain cover'd with earth above 1500 years.

5. *Timber* which is *cleft* is nothing ſo obnoxious to *rift* and cleave as what is *hewn*; nor that which is *ſquar'd*, as what is *round*; and therefore where uſe is to be made of huge and maſſie *Columns*, let them be *boared* through from end to end; it is an excellent preſervative from ſplitting, and not *un-philoſophical*; though to cure this accident, the rubbing them over with a *wax-cloath* is good, Painters *Putty*, *&c.* or before it be *converted*, the ſmearing the *Timber* over with *Cow-dung*, which prevents the effects both of *Sun* and *Air* upon it, if of neceſſity it muſt lye expos'd: But beſides the former remedies I find *this* for the cloſing of the chops and clefts of *green Timber*, to anoint and ſupple it with the fat of *powder'd-beef-broth*, with which it muſt be well ſoak'd, the *chaſm's* fill'd with *ſpunges* dipt into it; *this* to be twice done over: Some *Carpenters* make uſe of *greaſe* and *ſaw-duſt* mingled; but the firſt is ſo good a way (ſays my *Author*) that I have ſeen *Wind-ſhock-timber* ſo exquiſitely cloſed, as not to be diſcerned where the defects were: This muſt be us'd when the *Timber* is green: Finally,

6. I muſt not omit to take notice of the *coating* of *Timber* in *Work*, us'd by the *Hollanders* for the preſervation of their *Gates*, *Port-cullis's*, *Draw-bridges*, *Sluces*, and other huge *Beams*, and *Contignations* of *Timber* expos'd to the *Sun*, and perpetual injuries of the *Weather*, by a certain mixture of *Pitch* and *Tar*, upon which they ſtrew ſmall pieces of *Cockle* and other *ſhells*, beaten almoſt to *powder*, and mingled with *Sea-ſand*, which *incruſts* and arms it after an incredible manner againſt all theſe aſſaults and foreign invaders.

Uſes. 7. For all uſes *that* Timber is eſteem'd the beſt which is the moſt

moſt *light*, without *knots*, yet firm, and free from *ſap*; which is that fatty, *whiter*, and *ſofter* part, call'd by the Ancients *Alburnum*, which you are diligently to hew away : You ſhall perceive ſome which has a *ſpiral* convolution of the *veins*; but it is a vice proceeding from the ſeverity of unſeaſonable *Winters*, and defect of good nutriment.

8. Moreover, it is expedient that you know which is the *Grain*, and which are the *Veins* in *Timber*; becauſe of the difficulty of working againſt it : Thoſe therefore be the *veins* which grow largeſt, and are ſofter for the benefit of cleaving and hewing; *that* the *Grain* which runs in waves, and makes the divers and beautiful *chamfers* which ſome woods abound in to admiration. The *Grain* of *Beech* runs two contrary ways, and is therefore to be wrought accordingly.

9. For the *place* of growth, that *Timber* is eſteem'd beſt which grows moſt in the *Sun*, and on a dry and hale ground; The *Climate* contributes much to its *quality*, and the *Northern* ſituation is preferr'd to the reſt of the *quarters*; ſo as that which grew in *Tuſcany* was of old thought better then that of the *Venetian* ſide; and *Trees* of the *wilder kind*, and *barren*, then the over much cultivated, and great bearers : but of this already.

10. To omit nothing, *Authors* have ſumm'd up the *natures* of *Timber*; as the hardeſt *Ebeny*, *Box*, *Larch*, *Lotus*, *Terebinth*, *Eugh*, &c. which are beſt to receive *poliſhing*; and for this *Lin-ſeed*, or the ſweeter *Nut-oyl* does the effect beſt : *Pliny* gives us the *Receipt*, with a decoction of *Walnut-ſhales*, and certain *wild-pears* : Next to theſe, *Oak* for *Ships*, and *Houſes*; *Cornel*, *Holly*, *&c.* for *Pins*, *Wedges*, &c. *Cheſs-nut*, *Horn-beam*, *Poplar*, *&c.* Then for *Bucklers*, and *Targets*, were commended the more ſoft and moiſt; becauſe apt to cloſe, ſwell, and make up their wounds again; ſuch as *Willow*, *Lime*, *Birch*, *Alder*, *Elder*, *Aſh*, *Poplar*, &c.

The *Robur*, or *Wild-oak* Timber, beſt to ſtand *in* ground; the *Quercus* without.

Pines, *Pitch*, *Alder* and *Elm*, are excellent to make *Pumps* and *Conduit-pipes*, and for all *Water-works*, &c. *Fir* for *Beams*, *Bolts*, *Bars*; being tough, and not ſo apt to break as the hardeſt *Oak* : In ſum, the more *odoriferous* Trees are the more durable and laſting.

11. We did, in *Chap.* 21. mention certain *Subterranean Trees*, which Mr *Cambden* ſuppoſes grew altogether under the ground : And truly, it did appear a very *Paradox* to me, till I both ſaw and diligently examin'd that piece (*Plank*, *Stone*, or both ſhall I name it) of *Lignum foſſile* taken out of a certain *Quarry* thereof at *Aqua Sparta* not far from *Rome*, and ſent to the moſt incomparably learn'd Dr *Ent*, by that obliging *Virtuoſo Cavalier dal Pozzo*. He that ſhall examine the *hardneſs*, and feel the *ponderouſneſs* of it, ſinking in *water*, *&c.* will eaſily take it for a *ſtone*; but he that ſhall behold its *grain*, ſo exquiſitely *undulated*, and varied, together with its *colour*, manner of *hewing*, *chips*, and other moſt perfect reſemblances, will never ſcruple to pronounce it arrant *wood*.

Signor

Signor Stelluti (an *Italian*) has publiſh'd a whole *Treatiſe* expreſly to deſcribe this great *curioſity*: But, whiles others have *Philoſophiz'd* according to their manner upon theſe extraordinary *Concretions*; ſee what the moſt induſtrious, and knowing M. *Hook*, *Curator* of this *Royal Society*, has with no leſs *Reaſon*, but more ſuccinctneſs, obſerv'd from a late *Microſcopical* Examen of another piece of *petrifi'd-wood*; the Deſcription, and Ingenuity whereof cannot but gratifie the *Curious*, who will by this *Inſtance*, not only be inſtructed how to make *Inquiries* upon the like *occaſions*; but ſee alſo with what *accurateneſs* the *Society* conſtantly proceeds in all their *Indagations*, and *Experiments*; and with what *Candor* they relate, and communicate them.

12. "It reſembl'd *Wood*, in that

"Firſt, all the parts of the *petrifi'd* ſubſtance ſeem'd not at all "diſlocated, or alter'd from their natural poſition whiles they "were *wood*; but the whole piece retain'd the exact ſhape of "*wood*, having many of the conſpicuous *pores* of *wood* ſtill re- "maining *pores*, and ſhewing a manifeſt difference viſible enough "between the *grain* of the *wood* and that of the *Bark*; eſpecially, "when any ſide of it was cut ſmooth and polite; for then it ap- "pear'd to have a very lovely *grain*, like that of ſome curious "cloſe *wood*.

"Next (it reſembled wood) in that all the ſmaller and (if ſo I "may call thoſe which are only to be ſeen by a good glaſs) *mi- "croſcopical* pores of it, appear (both when the ſubſtance is cut and "poliſh'd *tranſverſly*, and *parallel* to the pores) perfectly like the "*Microſcopical* pores of ſeveral kinds of *wood*, retaining both the "ſhape, and poſition of ſuch pores.

"It was differing from *wood*.

"Firſt, in *weight*, being to common water, as $3\frac{1}{4}$ to 1. where- "as there are few of our *Engliſh* woods that, when dry, are found "to be full as heavy as *water*.

"Secondly, in hardneſs, being very neer as hard as a "*Flint*, and in ſome places of it alſo reſembling the grain of a "*Flint*: it would very readily cut *Glaſs*, and would not without "difficulty (eſpecially in ſome parts of it) be ſcratch'd by a black "hard *Flint*: it would alſo as readily ſtrike *fire* againſt a *Steel*, as "alſo againſt a *Flint*.

"Thirdly, In the cloſeneſs of it; for, though all the *micro- "ſcopical pores* of the *wood* were very conſpicuous in one poſition, "yet by altering that poſition of the poliſh'd ſurface to the light, "it alſo was manifeſt that thoſe *pores* appear'd darker then the "reſt of the body, only becauſe they were fill'd up with a more "duſky ſubſtance, and not becauſe they were hollow.

"Fourthly, in that it would not *burn* in the *Fire*; nay, though "I kept it a good while red-hot in the flame of a *Lamp*, very in- "tenſly caſt on it by a *blaſt* through a ſmall *pipe*; yet it ſeem'd "not at all to have diminiſh'd its extenſion; but only I found it "to have chang'd its colour, and to have put on a more dark, and "duſky brown *hue*. Nor could I perceive that thoſe parts which

"ſeem'd

cc ſeem'd to have been *Wood* at firſt, were any thing waſted, but cc the parts appear'd as ſolid, and cloſe, as before. It was farther cc obſervable alſo, that as it did not conſume like *wood*; ſo neither cc did it crack and fly like a *Flint*, or ſuch like hard *ſtone*; nor was cc it long before it appeared *red-hot*.

cc Fiftly, in its diſſolubleneſs; for putting ſome *drops* of *diſtil-* cc *led Vinegar* upon the *ſtone*, I found it preſently to yield very cc many *bubbles*, juſt like thoſe which may be obſerved in *ſpirit* of cc *Vinegar* when it corrodes *Coral*; though I gueſs many of thoſe cc *bubbles* proceeded from the ſmall parcels of *Air*, which were cc driven out of the pores of this *petrifi'd* ſubſtance, by the inſinu- cc ating liquid *menſtruum*.

cc Sixthly, in its *Rigidneſs*, and *friability*; being not at all *flexi-* cc *ble*, but *brittle* like a *Flint*; inſomuch that with one knock of a cc *Hammer* I broke off a ſmall piece of it, and with the ſame *ham-* cc *mer* quickly beat it to pretty fine *powder* upon an *Anvil*.

cc Seventhly, it ſeem'd alſo very differing from *wood*, to the cc *touch*, feeling more cold then *wood* uſually does, and much like cc other cloſe *Stones* and *Minerals*.

cc The *Reaſons* of all which *Phænomona* ſeem to be.

cc That this *petrifi'd wood* having lain in ſome place where it was cc well ſoaked with *petrifying water* (that is, ſuch a *water* as is well cc impregnated with *ſtony* and *earthy* particles) did by degrees ſe- cc parate, by *ſtraining* and *filtration*, or perhaps by *præcipitation*, cc *co-hæſion* or *co-agulation*, abundance of *ſtony particles* from that cc permeating water, which *ſtony particles* having, by means of the cc fluid *Vehicle*, convey'd themſelves not only into the *microſcopi-* cc *cal pores*, and perfectly ſtop'd up them; but alſo into the *pores*, cc which may perhaps be even in that part of the *Wood* which cc through the *microſcope* appears moſt ſolid; do thereby ſo aug- cc ment the weight of the *wood*, as to make it above three times cc heavier then *water*, and perhaps ſix times as heavy as it was cc when *wood*; next, they hereby ſo lock up and fetter the parts cc of the *wood*, that the *fire* cannot eaſily make them fly away, but cc the action of the *Fire* upon them is only able to *Char* thoſe parts, cc as it were, like as a piece of *wood* if it be cloſed very faſt up in cc *clay*, and kept a good while *red-hot* in the *fire*, will by the heat cc of the *fire* be *charr'd*, and not conſum'd; which may perhaps cc be the Reaſon why the *petrifi'd ſubſtance* appear'd of a blakiſh cc brown colour after it had been burnt. By this intruſion of the cc *petrifi'd particles* it alſo becomes *hard*, and *friable*; for the cc ſmaller *pores* of the *wood* being perfectly ſtuffed up with theſe cc *ſtony particles*, the *particles* of the *wood* have few, or no *pores* cc in which they can reſide, and conſequently, no *flexion* or yield- cc ing can be caus'd in ſuch a *ſubſtance*. The remaining *particles* cc likewiſe of the *wood* among the *ſtony particles* may keep them cc from cracking and flying, as they do in a *Flint*.

Finally, for the uſe of our *Chimneys*, and maintenance of *fire*, the plenty of *wood* for *Fuel*, rather then the *quality* is to be looked after; and yet are there ſome greatly to be preferr'd before

others, as harder, longer-*laſting*, better *heating*, and cheerfully burning; for which we have commended the *Aſh*, *&c.* in the foregoing *Paragraphs*, and to which I pretend not here to add much, for the avoiding repetitions; though even an *Hiſtory* of
2. the beſt way of *Charking* would not miſ-become this *Diſcourſe*.
3. But in this penury of that dear Commodity, to incite all ingenious perſons, ſtudious of the benefit of their *Country*, to think of ways how our *Woods* may be preſerved, by all manner of *Arts* which may prolong the laſting of our *Fuel*, I would give the beſt encouragements. Thoſe that ſhall ſeriouſly conſider the intolerable miſery of the poor *Cauchi*, the then inhabitants of the *Low-Countries* deſcrib'd by *Pliny*, *lib.*16.*cap.*1. (how opulent ſoever their late *Induſtry* has render'd them) for want only of *wood* for *Fuel*, will have reaſon to deplore the exceſſive decay of our former ſtore of that uſeful Commodity; and by what ſhifts our Neighbours the *Hollanders* do yet repair that defect, be invited to exerciſe their ingenuity: For beſides the *Dung* of *Beaſts*, and the *Turf* for their *Chimneys*, they make uſe of *Stoves* both portable, and ſtanding; and truly the more frequent uſe of thoſe *Inventions* in our great, waſting *Cities* (as the cuſtom is through all *Germany*) as alſo of thoſe new, and excellent *Ovens* invented by D*r Keffler*, for the incomparably baking of *Bread*, *&c.* would be an extraordinary expedient of huſbanding our *Fuel*; as well as the right mingling, and making up of *Char-coal-duſt*, and *loam*, as 'tis hinted to us by Sir *Hugh Plat*, and is generally us'd in *Maſtricht* and the Country about it; then which there is not a more ſweet, laſting and beautiful *Fuel*; The manner of it is thus:

4. Take about one *third part* of the ſmalleſt of any *Coal*, *Pit*, *Sea* or *Char-coal*; and commix them very well with *loam* (whereof there is in ſome places to be found a ſort ſomewhat combuſtible) make theſe up into *balls*, as big as an ordinary *Cannon*-bullet, or ſomewhat bigger; or if you will in any other form, like *brick-bats*, *&c.* expoſe theſe in the *air* till they are throughly dry; they will be built into the moſt orderly *fires* you can imagine, *burn* very clear, give a wonderful heat, and continue a very long time.

Two or three ſhort *Billets* cover'd with *Char-coal* laſt much longer, and with more life, then twice the quantity by it ſelf, whether *Char-coal* alone, or *Billet*; and the *Billets* under the *Char-coal* being undiſturb'd, will melt as it were into *Char-coals* of ſuch a laſting ſize.

If *Small-coals* be ſpread over the *Char-coal*, where you burn it alone, 'twill bind it to longer continuance; and yet more, if the *Small-coal* be made of the *roots* of *Thornes*, *Briers* and *Brambles*. Conſult *L.Bacon*, *Exp.*775.

The *Sea-weed* which comes in our *Oyſter-barrels* laid under *New-Caſtle-coal* to kindle it (as the uſe is in ſome places) will (as I am inform'd) make it out-laſt two great *fires* of ſimple *coals*, and maintain a glowing *luculent* heat without waſte: It was not try'd by my *Friend*, what it would do as to *Fuel* burnt by it ſelf; but, that it adds much life, continuance and aid, to our ſullen *Sea-*

coal

coal fuel; and if the main *Ocean* ſhould afford *Fuel*, (as the *Bernacles* and *Soland-Geeſe* are ſaid to do in ſome parts of *Scotland* with the very *ſticks* of their *Neſts*) we in theſe *Iſles* may thank our ſelves if we be not warm: Theſe few particulars I have but mention'd to animate *Improvements*, and ingenious Attempts of detecting more cheap, and uſeful *proceſſes*, for ways of *Charking-coals*, *Peat*, and the like *fuliginous* materials; as the accompliſh'd M. *Boyle* has intimated to us in the *Fift* of thoſe his precious *Eſſays* concerning the *uſefulneſs* of *Natural Philoſophy*, *Part* 2. *cap.* 7. *&c.* to which I refer the curious.

6, By the *Preamble* of the *Statute* 7, *Ed.* 6. one may perceive (the *Meaſures* compar'd) how plentiful *Fuel* was in the time of *Edward* the 4th to what it was in the *Reigns* of his *Succeſſors*: This ſuggeſted a review of *Sizes*, and a reformation of *Abuſes*; in which it was *Enacted*, that every *Sack* of *Coals* ſhould contain *four Buſhels*: Every *Taleſhide* to be four *foot* long, beſides the *carf*; and if *nam'd* of *one*, *marked* one, to contain 16 inches *circumference*, within a foot of the middle: If of two marks, 23 inches; of 3. 28. of 4. 35; of 5.38. inches *about*, and ſo proportionably.

6. *Billets* were to be of three foot, and four inches in length: the ſingle to be 17 inches and an half about; and every *Billet* of one *caſt* (as they term the mark) to be ten inches about: of two caſt, fourteen inches, and to be marked (unleſs for the private uſe of the *Owner*) within ſix inches of the middle: of one caſt within four inches of the end, *&c.*

Every bound *Fagot* ſhould be *three* foot long; the *band* twenty four inches *circumference*, beſides the knot.

In the 43. *Eliz.* the ſame *Statute* (which before only concern'd *London* and its *Suburbs*) was made more univerſal; and that of *Edw.* 6. explain'd with this addition: For ſuch *Taleſhides* as were of neceſſity to be made of *cleft-wood*, if of one mark, and half round, to be 19 inches about; if quarter-cleft, 18 inches ½: Marked two, being round it ſhall be 23 inches compaſs: half-round 27: quarter-cleft 26: marked three, round 28: half-round 33: quarter-cleft 32: marked four, being round 33 inches about: half-round 39: quarter-cleft 38: marked five round, 38 inches about: half-round 44: quarter-cleft 43: the meaſure to be taken within half a foot of the middle of the length mention'd in the former *Statute*.

Then for the *Billet* every one nam'd a *ſingle*; being round to have 7 inches ½ *circumference*; but no *ſingle* to be made of cleft wood: If marked one, and round, to contain 11 inches compaſs: if half-round 13: quarter-cleft 12½.

If marked two, being round, to contain 16 inches: half-round 19: quarter-cleft 18½: the length as in the *Statute* of King *Ed.* 6.

7. *Fagots* to be every ſtick of *three foot* in length, excepting only one ſtick of one foot long, to harden and wedge the binding of it: This to prevent the abuſe (too much practis'd) of filling the middle part, and ends with traſh, and ſhort ſticks, which had been omitted in the former *Statute*: concerning this and of

the *dimenſions* of wood in the *Stack*, ſee *Chap.* 27. to direct the leſs inſtructed *Purchaſer:* and I have been the more particular upon this occaſion; becauſe then our *Fuel* bought in *Billet* by the *Notch* (as they call it in *London*) there is nothing more deceitful; for by the vile iniquity of ſome *Wretches*, marking the *Billets* as they come to the *Wharf*, Gentlemen are egregiouſly cheated. I could produce an inſtance of a *Friend* of mine (and a *Member* of this *Society*) for which the *Wood-monger* has little cauſe to brag; ſince he never durſt come at him, or challenge his *Money* for the *Commodity* he bought; becauſe he durſt not ſtand to the *meaſure*.

8. But I will now deſcribe to you the *Myſtery* of *Charking* (whereof ſomething was but touch'd in the *Proceſs* of extracting *Tar* out of the *Pines*) as I receiv'd it from a moſt induſtrious *perſon*, and ſo conclude the *Chapter*.

There is made of *Char-coal* uſually *three* ſorts, *viz.* one for the *Iron-works*, a ſecond for *Gun-powder*, and a third for *London* and the *Court*, beſides *Small-coals*, of which we ſhall alſo ſpeak in its due place.

We will begin with that ſort which is us'd for the *Iron-works*, becauſe the reſt are made much after the ſame manner, and with very little difference.

The beſt *Wood* for this is good *Oak*, cut into lengths of three foot, as they ſize it for the *Stack:* This is better then the *Cord-wood*, though of a larger meaſure, and much us'd in *Suſſex*.

The *wood* cut, and ſet in *ſtacks* ready for the *Coaling*; chuſe out ſome level place in the *Copſe*, the moſt free from ſtubs, *&c.* to make the *Hearth* on: In the midſt of this *area* drive down a ſtake for your *Centre*, and with a *pole*, having a *ring* faſtn'd to one of the extreams (or elſe with a *Cord* put over the *Centre*) deſcribe a *Circumference* from twenty, or more feet *ſemidiameter*, according to the quantity of your *wood* deſign'd for *coaling*, which being neer may conveniently be charked in that *Hearth*; and which at one time may be 12, 16, 20, 24, even to 30 *ſtack:* If 12 therefore be the quantity you will *coal*, a *Circle* whoſe *diameter* is 24 foot, will ſuffice for the *Hearth*; If 20 ſtack, a diameter of 32 foots; If 30, 40 foot, and ſo proportionably.

Having thus marked out the ground, with *Mattocks*, *haws* and fit Inſtruments, *bare* it of the *Turf*, and of all other combuſtible ſtuft whatſoever, which you are to rake up towards the *Peripherie*, or out-ſide of the *circumference*, for an *uſe* to be afterwards made of it; plaining, and levelling the ground within the *circle:* This done, the *wood* is to be brought from the neereſt parts where it is *ſtack'd*, in *wheel-barrows*; and firſt the ſmalleſt of it plac'd at the utmoſt limit, or very margent of the *Hearth*, where it is to be ſet long-ways, as it lay in the *ſtack*; the biggeſt of the wood pitch, or ſet up on end round about againſt the *ſmall-wood*, and all this within the *circle*, till you come within five, or ſix foot of the *centre*; at which diſtance you ſhall begin to ſet the *wood* in a *Triangular* form (as in Fig. 2. A) till it come to be three foot high:

Againſt

Againſt *this* again place your greater wood almoſt *perpendicular*, reducing it from the *triangular* to a circular form, till being come within a yard of the *centre* you may pile the wood long-ways, as it lay in the *ſtack*, being careful that the ends of the *wood* do not touch the *Pole*, which muſt now be erected in the *centre*, nine foot in height, that ſo there may remain a round *hole*, which is to be form'd in working up the *ſtack-wood*, for a *tunnel*, and the more commodious *firing* of the *pit*, as they call it. This provided for, go on to *pile*, and ſet your wood upright to the *other*, as before; till having gain'd a yard more, you lay it long-ways again as was ſhew'd: And thus continue the work, ſtill enterchanging the *poſition* of the wood till the whole *Area* of the *Hearth* and *Circle* be fill'd, and pil'd up at the leaſt eight foot high, and ſo drawn *in* by degrees in *piling*, that it reſemble the form of a *copped* brown *Houſhold-loaf*, filling all inequalities with the ſmaller *trunchions* till it lye very cloſe, and be perfectly, and evenly ſhaped. This done, then take *ſtraw*, *haume* or *ferne*, and lay it on the out-ſide of the bottom of the *heap* or *wood*, to keep the next *cover* from falling amongſt the ſticks: Upon *this* put on the *turf*, and caſt on the *duſt* and *rubbiſh* which was grubb'd and raked up at the making of the *Hearth*, and reſerved neer the *circle* of it; with *this* cover the whole heap of *wood* to the very top of the *pit*, or *tunnel*, to a reaſonable and competent thickneſs beaten cloſe and even, that ſo the *fire* may not *vent* but in the places where you intend it; and if in preparing the *Hearth*, at firſt, there did not riſe ſufficient *turf* and *rubbiſh* for this work, ſupply it from ſome convenient place neer to your *heap*: There be who cover this again with a *ſandy*, or finer mould, which if it cloſe well need not be above an *inch* or two thick: This done, provide a *Screene*, by making light *hurdles* with *ſlits*, *rods*, and *ſtraw* of a competent thickneſs, to keep *off* the *wind*; and broad, and high enough to defend an oppoſite ſide to the very top of your *pit*, being eight or nine foot; and ſo as to be eaſily remov'd as need ſhall require for the luing of your *pit*.

When now all is in this poſture, and the *wood* well rang'd, and clos'd, as has been directed, ſet *fire* to your *heap*: But firſt, you muſt provide you of a *Ladder* to aſcend the top of your *pit*: this they uſually make of a curved *Tiller* fit to apply to the *convex* ſhape of the *heap*, and cut it full of notches for the more commodious ſetting their feet whiles they govern the *fire* above; therefore now they pull up, and take away the *ſtake* which was erected at the *centre* to guide the building of the *pile*, and cavity of the *Tunnel*. This done, put in a quantity of *Char-coals* (about a *peck*) and let them fall to the bottom of the *Hearth*; upon them caſt in *coals* that are fully kindled; and when thoſe which were firſt put in are beginning to ſink, throw in more *fuel*; and ſo, from time to time, till the *Coals* have univerſally taken *fire up* to the top: Then cut an ample, and reaſonable thick *turf*, and clap it over the hole, or *mouth* of the *Tunnel*, ſtopping it as cloſe as may be with ſome of the former duſt and rubbiſh. Laſtly, with the handles of your *Rakers*, or the like, you muſt make *Vent-holes*, or

Regiſters

Regiſters (as our *Chymiſts* would name them) through the ſtuff which covers your *heap* to the very *wood*, theſe in ranges of two or three foot diſtance quite round within a foot (or thereabout) of the top, though ſome begin them at the bottom: A day after begin another row of *holes* a foot and half beneath the former; and ſo more, till they arrive to the ground, as occaſion requires. Note, that as the *Pit* does *coal* and ſink towards the *centre*, it is continually to be fed with ſhort, and fitting *wood*, that no part remain unfir'd; and if it *charks* faſter at one part then at another, *there* cloſe up the *vent-holes*, and open them where need is: A *pit* will in this manner be burning off, and *Charking*, five, or ſix days, and as it coals the *ſmoak* from thick and groſs clouds will grow more blew, and livid, and the whole maſs ſink accordingly; ſo as by theſe indications you may the better know how to ſtop, and govern your *ſpiracles*. Two or three days it will only require for cooling, which (the *vents* being ſtopp'd) they aſſiſt, by taking now off the outward covering with a *Rabil* or *Rubber*; but *this* not for above the ſpace of one *yard* breadth at a time; and firſt they remove the courſeſt, and groſſeſt of it, throwing the finer over the *heap* again, that ſo it may neither *cool* too haſtily, nor endanger the burning and reducing all to *Aſhes*, ſhould the whole *pit* be uncover'd and expos'd to the *air* at once; therefore they open it thus round by degrees.

When now by all the former *Symptoms* you judge it fully *chark'd*, you may begin to *draw*; that is, to take out the *Coals*, firſt round the bottom, by which means the *Coals*, *Rubbiſh* and *Duſt* ſinking and falling in together may choak, and extinguiſh the *fire*.

Your *Coals* ſufficiently *cool'd*, with a very long-tooth'd *Rake*, and a *Vann*, you may load them into the *Coal-wains*, which are made cloſe with boards, purpoſely to carry them to *Market*: Of theſe *Coals* the groſſer ſort are commonly reſerv'd for the *Forges*, and *Iron-works*, the middling and ſmoother put up in *ſacks* and carried by the *Colliers* to *London* and the adjacent *Towns*; thoſe which are *chark'd* of the roots, if pick'd out, are accounted beſt for *Chymical* fires, and where a laſting, and extraordinary *blaſt* is requir'd.

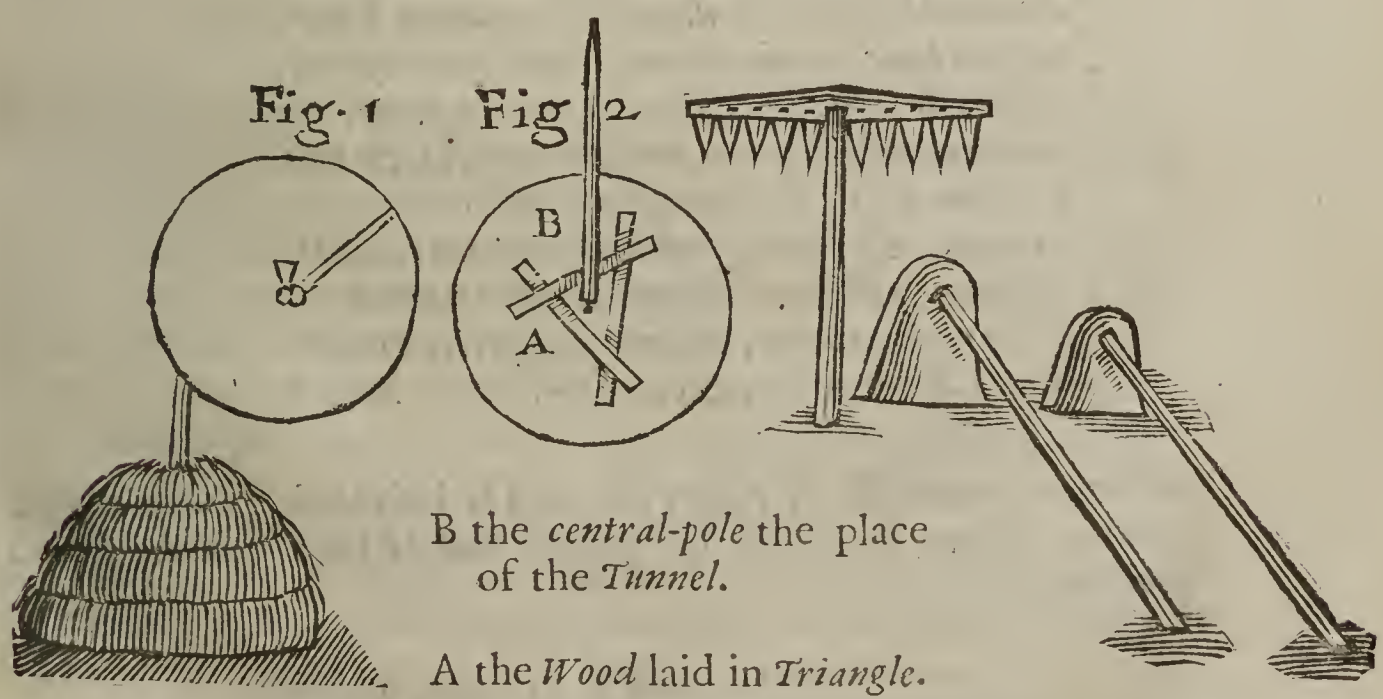
9. *Coal* for the *Powder-mills* is made of *Alder-wood* (but *Lime-tree* were much better had we it in that plenty as we eaſily might) *cut*, *ſtack'd*, and *ſet* on the *Hearth* like the former: But firſt ought the *wood* to be wholly *diſbark'd* (which work is to be done about *Mid-ſummer* before) and being throughly dry it may be *coaled* in the ſame method, the *heap* or *pits* only ſomewhat ſmaller, by reaſon that they ſeldom *Coal* above five, or ſix *ſtack* a time, laying it but two *lengths* of the *wood* one above the other, in form ſomewhat flatter on the *top* then what we have deſcrib'd. Likewiſe do they fling all their *rubbiſh* and *duſt* on the *top*, and begin not to cover at the *bottom*, as in the former example. In like ſort, when they have drawn up the *fire* in the *Tunnel*, and ſtopp'd it, they begin to draw down their *duſt* by degrees round the heap; and this *proportionably*,

portionably as it *fires*, till they come about to the *bottom*; all which is diſpatch'd in the ſpace of two days. One of theſe *heaps* will *char* threeſcore *ſacks* of *Coal*, which may all be carried at one time in a *Waggon*; and ſome make the *Court-coals* after the ſame manner. Laſtly,

10. *Small-coals* are made of the *ſpray*, and *bruſh-wood* which is ſhripped off from the *branches* of *Copſe-wood*, and which is ſometimes bound up into *Bavins* for this uſe; though alſo it be as frequently *charked* without binding, and then they call it *cooming* it together: This they place in ſome neer *floor*, made level, and freed of incumbrances, where ſetting one of the *Bavins* or part of the *ſpray*, on *fire*, two men ſtand ready to throw on *Bavin* upon *Bavin* (as faſt as they can take *fire*, which makes a very great and ſudden blaze) till they have burnt all that lyes neer the place, to the number (it may be) of five, or ſix hundred *Bavins*: But ere they begin to ſet *fire* they fill great *Tubs* or *Veſſels* with *water*, which ſtand ready by them, and this they daſh on with a great *diſh* or *ſcoup* ſo ſoon as ever they have thrown on all their *Bavins*, continually plying the great *heap* of glowing *Coals*, which gives a ſudden ſtop to the fury of the *fire*, whiles with a great *Rake* they lay, and ſpread it abroad, and ply their caſting of *water* ſtill on the *Coals*, which are now perpetually turn'd by two men with great *Shovels*, a third throwing on the water: This they continue till no more fire appears, though they ceaſe not from being very hot: After this, they *ſhovel* them up into great *heaps*, and when they are throughly *cold*, put them up in *ſacks* for *London*, where they uſe them amongſt divers *Artificers*, both to kindle greater *fires*, and to temper, and *aneal* their ſeveral Works.

The beſt ſeaſon for the fetching home of other *Fuel*, is from *June*; the *ways* being then moſt dry, and paſſable.

Fig. 1 Fig 2



B the *central-pole* the place of the *Tunnel*.

A the *Wood* laid in *Triangle*.

11. And thus we have ſeen how for *Houſe-boot*, and *Ship-boot*, *Plow-boot*, *Hey-boot* and *Fire-boot*, the *Planting*, and *Propagation* of

of *Timber* and *Foreſt-trees* is requiſite; ſo as it was not for nothing, that the very *name* (which the *Greeks* generally apply'd to *Timber*) ὕλη, by *Senechdoche*, was taken always *pro Materia*; ſince we hardly find any thing in *Nature* more univerſally uſeful; or, in compariſon with it, deſerving the name of *Material.*

9. To ſum up all the good *qualities* then, and *tranſcendent* perfections of *Trees*, let us hear the harmonious *Poets*, in this conſort of their *Elogies:*

——— dant utile lignum
Navigiis pinos, domibus cedróſqus cupreſsóſque;
Hinc radios trivere rotis, hinc tympana plauſtris
Agricolæ, & pandas ratibus poſuere carinas.
Viminibus ſalices, fœcundæ froondibus Ulmi:
At Myrtus validis haſtilibus, & bona bello
Cornus: Ityreos Taxi torquentur in arcus.
Nec Tiliæ lœves, aut torno raſile Buxum,
Non formam accipiunt ferróque cavantur acuto.
Nec non & torrentem undam in levis innatat Alnus
Miſſa Pado; nec non & apes examina condunt
Corticibúſque cavis, vitioſæq; Ilicis alvo: Georg. 2.

and the moſt ingenious *Ovid*, where he introduces the miraculous *Grove* rais'd by the melodious *Song* of *Orpheus*,

———non chaonis abfuit arbor,
Non nemus Heliadum, non frondibus æſculus altis,
Nec Tiliæ molles, nec Fagus, & innuba Laurus,
Et Coryli fragiles, & Fraxinus utilis haſtis;
Enodíſque Abies, curvataque glandibus Ilex,
Et Platanus genialis, Acérque coloribus impar.
Amnicoláque ſimul Salices, & aquatica Lotos,
Perpetuóque virens Buxus, tenuéſque Myricæ,
Et bicolor Myrtus, & baccis cærula Ficus.
Vos quoque flexi-pedes Hederæ veniſtis, & unâ
Pampineæ Vites, & amictæ Vitibus Ulmi,
Orníque, & Piceæ, Pomóque onerata rubenti
Arbutus, & lentæ victoris præmia Palmæ,
Et ſuccincta comas, hirſutaque vertice Pinus
Grata Deûm matri, &c. ——— Met. 10.

as the incomparable *Poet* goes on, and is imitated by our divine *Spencer*, where he brings his gentle *Knight* into a ſhady *Grove* praiſing

———the *Trees* ſo ſtraight, and high,
The ſailing *Pine*, the *Cedar* proud, and tall,
The Vine-prop *Elm*, the *Poplar* never dry
The builder *Oak*, ſole King of *Foreſts* all;

The

The *Aſpine*, good for *ſtaves*; the *Cypreſs* funeral:
The *Laurel*, meede of mighty Conquerours
And Poets ſage; the *Fir*, that weepeth ſtill;
The *Willow*, worn of forlorne Paramours;
The *Eugh*, obedient to the benders will;
The *Birch* for ſhafts; the *Sallow* for the Mill;
The *Myrrhe* ſweet bleeding in the bitter wound;
The war-like *Beech*; the *Aſh* for nothing ill;
The fruitful *Olive*, and the *Platane* round;
The Carver *Holm*; the *Maple*, ſeldom inward ſound.

Canto. 1.

And in this *Symphony* might the noble *Taſſo* bear likewiſe his *part*; but that theſe are ſufficient, *& tria ſunt omnia.* What now remains concerns only ſome general *Præcepts*, and *Directions* applicable to moſt of that we have formerly touched; together with a *Brief* of what farther *Laws* have been enacted for the *Improvement*, and preſervation of *Woods*; and which having diſpatch'd, ſhall with a ſhort *Paræneſis* touching the preſent ordering, and diſpoſing of his *Majeſties Plantations* for the future benefit of the *Nation*, put an end to this ruſtick Diſcourſe.

CHAP. XXXI.

Aphoriſms, *or certain general* Præcepts *of uſe to the foregoing* Chapters.

1. TRy all ſorts of *Seeds*, and by their thriving you ſhall beſt diſcern what are the moſt proper *kinds* for Grounds,

Quippe ſolo natura ſubeſt——

and of theſe deſign the main of your *Plantation.*

2. Keep your newly ſown *ſeeds* continually freſh, and in the *ſhade* (as much as may be) till they peep.

3. All *curious* ſeeds, and plants are diligently to be *weeded* till they are ſtrong enough to over-drop or ſuppreſs them: And you ſhall carefully *haw*, *half-dig*, and ſtir up the earth about their *Roots* during the firſt three years; eſpecially in the *Vernal*, and *Autumnal Æquinoxes:* This work to be done in a *moiſt* ſeaſon for the *firſt* year to prevent the *duſt*, and the ſuffocating of the tender *buds*; but afterwards in the more dry weather.

4. *Plants* rais'd from *ſeed*, ſhall be *thinn'd* where they come up too *thick*; and none ſo fit as you thus draw to be *tranſplanted* into *Hedge-rows*; eſpecially, where ground is precious.

5. In *tranſplanting*, omit not the placing of your *Trees* towards their accuſtom'd *Aſpect.*

6. Remove the *ſofteſt* wood to the *moiſteſt* grounds,

Diviſæ arboribus patriæ ——

7. Begin to Tranſplant *Foreſt-trees* when the leaves *fall* after *Michaelmas*; you may adventure when they are *tarniſh'd*, and grow yellow: It is loſt time to commence *later*, and for the moſt part of your Trees, early *Tranſplanters* ſeldom repent; for ſometimes a tedious band of *Froſt* prevents the whole *ſeaſon*, and the *baldneſs* of the *Tree* is a note of deceipt; for ſome *Oaks*, and moſt *Beeches*, preſerve their dead-leaves till new ones puſh them off.

8. *Set* deeper in the *lighter grounds* than in the *ſtrong*; but ſhalloweſt in *Clay*: five inches is ſufficient for the dryeſt, and one or two for the moiſt, provided you eſtabliſh them againſt *winds*.

9. *Plant* forth in *warm*, and *moiſt* ſeaſons; the *Air* tranquil and ſerene; the *wind* weſterly; but never whiles it actually *freezes*, *rains*, or in *miſty* weather; for it moulds, and infects the *Roots*.

10. What you gather, and draw out of *Woods*, plant immediately, for their roots are very apt to be mortified by the winds and cold air.

11. *Trees* produc'd from *ſeeds* muſt have the *Tap-roots* abated (the *Walnut-tree*, and ſome others excepted) and the bruiſed parts cut away; but ſparing the *fibrous*, for they are the principal feeders; and thoſe who cleanſe them too much, are puniſh'd for the miſtake.

12. In *ſpring* rub off ſome of the *Collateral* Buds, to cheek the exuberancy of *ſap* in the *Branches*, till the *Roots* be well eſtabliſh'd.

13. *Tranſplant* no more then you well *Fence*; for *that* neglected, *Tree-culture* comes to nothing: Therefore all young ſet *Trees* ſhould be defended from the *winds*, and *Sun*; eſpecially the *Eaſt*, and *North*, till their *roots* are fixed; that is, till you perceive them *ſhoot*; and the not exactly obſerving of this *Article* is cauſe of the periſhing of the moſt tender *Plantations*; for it is the invaſion of theſe two aſſailants which does more miſchief to our new ſet, and leſs hardy *Trees*, then the moſt ſevere and durable *Froſts* of a whole *Winter*.

14. The propereſt *ſoil*, and moſt natural, apply to diſtinct *Species*, *Nec verò terræ ferre omnes omnia poſſunt*. Yet we find by experience, that moſt of our *Foreſt-trees* grow well enough in the *courſeſt* lands; provided there be a competent depth of *mould*: For albeit moſt of our *wild plants* covet to run juſt under the *ſurface*, yet where there is not ſufficient depth to *cool* them, and entertain the *Moiſture* and *Influences*, they are neither laſting, nor proſperous.

15. *Wood* well planted will grow in *Mooriſh*, *Boggy*, *Heathy*, and the *ſtonieſt* grounds: Only the white and blew *Clay* (which is commonly the beſt *Paſture*) is the worſt for wood; and ſuch good Timber as we find in any of theſe (*Oaks* excepted) is of an exceſ-

exceſſive age, requiring thrice the time to arrive at their ſtature.

16. If the *ſeaſon* require it, all new *Plantations* are to be plied with *waterings*, which is better pour'd into a *circle* at ſome diſtance from the *Roots*, that *percolating* through a quantity of *earth* it may carry the *nitrous* virtue of the *ſoil* with it; and by no means at the *ſtem*; becauſe it waſhes the mould from the *Root*, comes too crude, and endangers their rotting: But,

17. For the cooling, and refreſhing *Tree-roots*, the congeſting of *Flints*, or *Pibbles* neer three foot of the *ſtem*, is preferable to all other; and ſo the *Poet*,

> *Aut lapidem bibulum, aut ſquallenteis infode conchas,*
> *Inter enim labentur aquæ, tenuíſque ſubibit*
> *Halitus* —— Georg. 2.

18. *Cut* no *Trees* when either *heat*, or *cold* are in extreams; nor in very *wet*, or *ſnowy* weather; and in this work it is profitable to diſcharge all Trees of unthriving, broaken, wind-ſhaken, *browſe*, and ſuch as our *Law* terms *Cablicia*, and to take them off to the quick,

> ——*ne pars ſincera trahatur.*

Many more uſeful Obſervations are to be collected, and added to theſe, from the diligent experience of *Planters*.

CHAP. XXXII.

Of the Laws *and* Statutes *for the* Preſervation, *and* Improvement *of* Woods, *&c.*

1. TO let paſs the *Laws*, and civil *Conſtitutions* of great *Antiquity*, by which *Servius* informs us 'twas no leſs then Capital, *alienas arbores incidere*; the *lex Aquilia*, and thoſe of the xii. *Tabb.* mention'd by *Paulus*, *Cajus*, *Julianus* and others of that *Robe* repeated divers more. The wiſe *Solon* preſcribed *Ordinances* for the very *diſtances* of *Trees*; as the divine *Plato* did againſt ſtealing of *Fruit*, and violating of *Plantations*: And the interdiction *de Glande legenda* runs thus in *Ulpian*, *AIT PRÆTOR, GLANDEM, QUÆ EX ILLIUS AGRO IN TUUM CADIT, QUO MINUS ILLI TERTIO QUOQUE DIE LEGERE AUFERRE LICEAT, VIM FIERI VETO.* But it is not *here* that I deſign to enlarge, as thoſe who have *philologiz'd* on this occaſion *de Sycophantis*, and other curious *Criticiſmes*; but paſs on, and confine my ſelf to the prudent *Sanctions* of our own *Parliaments*, which I deduce in this *Order*.

2. From the time of *Edward* the *fourth*, were enacted many excel-

excellent *Laws* for the *planting*, *ſecuring*, *cutting*, and *ordering* of *Woods*, *Copſes*, and *Under-woods*; as then they took cognizance of them; together with the ſeveral *penalties* upon the *Infringers*; eſpecially from the 25. of *Hen.* 8. 17. *&c.* confirm'd by the 13. and 27. of *Q. Eliz. cap.* 25. 19. *&c.* which are diligently to be conſulted, revived, put in execution, and enlarg'd where any defect is apparent; as in particular the *Act* of exempting of *Timber* of 22 years growth from *Tythe*, for a longer period, to render it compleat, and more effectual to their *Improvement*: And that *Law* repealed, by which *Willows*, *Sallows*, *Oziers*, &c. which they term *Sub-bois*, are reputed but as *Weeds*.

3. Severer *puniſhments* have lately been ordain'd againſt our *Wood-ſtealers*, deſtroyers of young *Trees*, *&c.* I cannot ſay they are ſharp ones, when I compare the ſeverity of our *Laws* againſt *Mare-ſtealers*; nor am I by inclination the leaſt *cruel*; But I do affirm, we might as well live without *Mares*, as without *Ships*, which are our *Wooden*, but no leſs profitable *Horſes*.

4. I have heard, that in the great *Expedition* of 88, it was expreſly enjoyn'd the *Spaniſh* Commanders of that ſignal *Armada*; that if when *landed* they ſhould not be able to ſubdue our *Nation*, and make good their *Conqueſt*; they ſhould yet be ſure not to leave a *Tree* ſtanding in the *Foreſt* of *Dean*: It was like the *Policy* of the *Philiſtines*, when the poor *Iſraelites* went down to their Enemies *Smiths* to ſharpen every man his *Tools*; for as they ſaid, *leſt the Hebrews make them Swords, or Spears*; ſo theſe, *leſt the Engliſh build them Ships*, and *Men of War*: Whether this were ſo, or not; certain it is, we cannot be too *jealous* for the preſervation of our *Woods*; and eſpecially of thoſe eminent, and with care inexhauſtible *Magazines*: I dare not ſuggeſt the encouragement of a yet farther *reſtraint*, that even *Proprietors* themſelves ſhould not preſume to make havock of ſome of their own *Woods*, to feed their *prodigality*, and heap *fuel* to their *vices*; but it is worthy of our obſervation, that (in that in-imitable *Oration*, the ſecond *Philippic*) *Cicero* does not ſo ſharply reproach his great *Antagoniſt* for any other of his *extravagancies* (which yet he there enumerates) as for his *waſteful* diſpoſure of certain *Wood-lands* belonging to the *Commonwealth*, amongſt his jovial *Bravo's*, and leud companions; *tua iſta detrimenta ſunt* (meaning his *Debauches*) *illa noſtra*; ſpeaking of the *Timber*.

5. But to the *Laws*: it were to be wiſh'd that our tender, and improvable *Woods*, ſhould not admit of *Cattle*, by any means, till they were quite grown out of *reach*; the *Statutes* which connive at it, in favour of *Cuſtom*, and for the ſatisfying of a few clamorous, and rude *Commoners*, being too *indulgent*; ſince it is very evident that leſs then a 14 or 15 years *incloſure* is, in moſt places, too ſoon; and our moſt *material* Trees would be of *infinite* more worth and improvement, were the *Standards* ſuffer'd to grow to *Timber*, and not ſo frequently cut, at the next *Felling* of the *Wood*, as the general cuſtom is. In 22. *Edw.* 4. the liberty ariv'd but to ſeven years after a *felling* of a *Foreſt* or *Purlieu*; and

but

but *three* years before, without ſpecial *licenſe :* This was very narrow ; but let us then look on *England* as an over-grown Country.

6. *Wood* in *Parks* was afterwards to be four years fenced upon *felling :* and yearling *Colts*, and *Calves* might be put into incloſed *Woods* after two : By the 13. *Eliz.* five years, and no other *Cattle* till ſix, if the growth was under fourteen years ; or untill eight, if exceeding that age till the laſt *felling :* All which *Statutes* being by the *Act* of *Hen.* 8. but *temporal*, this *Parliament* of *Eliz.* thought fit to make *perpetual.*

7. Then to prevent the deſtructive razing and converting of *Woods* to *Paſture :* No wood of two *Acres*, and above two *furlongs* from the *Manſion* houſe, ſhould be indulg'd : And the *prohibitions* are good againſt *Aſſarts* made in *Foreſts*, *&c.* without *licenſe :* The *penalties* are indeed great ; but how ſeldom inflicted ; and what is now more eaſie, then compounding for ſuch a *licenſe ?*

In ſome *parts* of *Germany*, where a ſingle *Tree* is obſerv'd to be extraordinary fertile, a conſtant, and plentiful *Maſt-bearer* ; there are *Laws* to prohibite their *felling* without ſpecial leave : And it was well *Enacted* amongſt us, that even the *Owners* of *Woods* within *Chaſes* ſhould not cut down the *Timber* without view of *Officers* ; or if not within *Chaſes*, yet where a *Common-perſon* had liberty of *Chaſe*, *&c.* and this would be of much benefit, had the *Regarders* perform'd their duty, as 'tis at large deſcrib'd in the *Writ* of the 12. *Articles* ; and that the *Surcharge* of the *Foreſts* had been honeſtly inſpected with the due *Perambulations*, and ancient *Metes :* Thus ſhould the *Juſtices* of *Eire* diſpoſe of no *Woods* without expreſs *Commiſſion*, and in convenient places : *Minuti blaterones quercuum*, *culi*, *& curbi*, as our *Law* terms *wind-falls*, *dotterels*, *ſcrags*, *&c.* and no others.

8. Care is likewiſe by our *Laws* to be taken that no unneceſſary *Imbezelment* be made by pretences of Repair of *Paling*, *Lodges*-*Browſe* for *Deer*, &c. *Wind-falls*, *Root-falls* ; dead, and *Sear-trees*, all which is ſubject to the Inſpection of the *Warders*, *Juſtices*, *&c.* and even treſpaſſes done *de Viridi* on boughs of *Trees*, *Thickets* and the like ; which (as has been ſhew'd) are very great impediments to their growth and proſperity, be duly looked after, and puniſhed : See *Conſuet. & Aſſiſ. Foreſt. Pannagium*, or *Paſtura pecorum & de Glandibus*, *Fleta*, *&c.* *Man-woods Foreſt-Laws : Cook pla. fol.* 366. *li.* 8. *fol.* 138.

9. Finally, that the exorbitance, and increaſe of devouring *Iron-mills* were looked into, as to their *diſtance*, and *number* neer the *Seas*, or navigable *Rivers* ; And what if ſome of them were even remov'd into another *World ?* 'twere better to purchaſe all our *Iron* out of *America*, then thus to exhauſt our *Woods* at *home*, although (I doubt not) they might be ſo order'd, as to be rather a means of conſerving them. There was a *Statute* made by Queen *Eliz.* to prohibite the converting of *Timber-trees* to *Coal*, or other *Fuel* for the uſe of *Iron-mills* ; if the Tree were of one foot ſquare, and growing within 14 miles of the

the *Sea*, or the greater *Rivers*, *&c.* 'tis pity ſome of thoſe places in *Kent*, *Suſſex* and *Surrey* were excepted in the *Proviſo*, for the reaſon expreſs'd in a *Statute* made 23. *Eliz.* by which even the imploying of any *under-wood*, as well as *great Trees*, was prohibited within 22 miles of *London*, and many other navigable *Rivers*, *Creeks*, and other leſſer diſtances from ſome parts of *Suſſex Downs*, *Cinque-ports*, *Havens*, &c.

10. And yet to prove what it is to manage *Woods* diſcreetly; I reade of one Mr *Chriſtopher Darell* a *Surrey* Gent. of *Nudigate*, that had a particular *Indulgence* for the cutting of *his* Woods at pleaſure, though a great *Iron-maſter*; becauſe he ſo order'd his *Works*, that they were a means of preſerving even his *Woods*; notwithſtanding thoſe unſatiable *devourers:* This may appear a *Paradox*, but is to be made out; and I have heard my own *Father* (whoſe *Eſtate* was none of the leaſt *wooded* in *England*) affirm, that a *Forge*, and ſome other *Mills*, to which he furniſh'd much *Fuel*, were a means of maintaining, and improving his *Woods*; I ſuppoſe, by increaſing the *Induſtry* of *planting*, and care; as what he has now left ſtanding of his own *planting*, *encloſing* and *cheriſhing* in the *poſſeſſion* of my moſt honour'd Brother, *Geo. Evelin* of *Wotton* in the ſame *County*, does ſufficiently evince; a moſt laudable *Monument* of his *Induſtry*, and rare Example.

11. The ſame *Act* we have confirmed, and enlarg'd in the 17th of the ſaid *Queen*, for the preſerving of *Timber-Trees*, and the penalties of impairing *Woods* much increaſed; the *tops*, and *offals* only permitted to be made uſe of for this imployment: But let us ſee what others do.

12. The King of *Spain* has neer *Bilbao* ſixteen times as many Acres of *Copſe-wood* as are fit to be cut for *Coal* in one year; ſo that when 'tis ready to be *fell'd*, an *Officer* firſt marks ſuch as are like to prove *Ship-timber*, which are let ſtand, as ſo many *ſacred*, and *dedicate* Trees: But by this means the *Iron-works* are plentifully ſupplied in the ſame place, without at all diminiſhing the ſtock of *Timber*. Then in *Biſcay* again, every *proprietor*, and other, plants *three* for *one* which he cuts down; and the *Law* obliging them is moſt ſeverely executed. There indeed are few, or no *Copſes*; but all are *Pollards*; and the very *lopping* (I am aſſur'd) does furniſh the *Iron-works* with ſufficient to ſupport them.

13. What the practice is for the maintaining of theſe kind of *Plantations* in *Germany*, and *France*, has already been obſerv'd to this *Illuſtrious Society* by the learned Dr *Meret*; *viz.* that the *Lords* and (for the *Crown-lands*) the *Kings Commiſſioners*, divide the *Woods*, and *Foreſts*, into *eighty* partitions; every year felling one of the diviſions; ſo as no *Wood* is fell'd in leſs then *fourſcore* years: And when any one *partition* is to be cut down, the *Officer*, or *Lord* contracts with the *Buyer* that he ſhall at the diſtance of every *twenty* foot (which is ſomewhat neer) leave a good, fair, ſound and fruitful *Oak* ſtanding. Thoſe of 'twixt *forty*, and *fifty* years they reckon for the beſt, and then they are to fence theſe *Trees* from all ſorts of *Beaſts*, and injuries, for a competent time; which being

being done, at the *ſeaſon*, down fall the *Acorns*, which (with the *Autumnal* rains beaten into the earth) take *root*, and in a ſhort time furniſh all the *Wood* again, where they let them grow for four, or five years; and then grub up ſome of them for *Fuel*, or *tranſplantions*, and leave the moſt *provable* of them to continue for *Timber*.

14. The *French* King permits none of his *Oak-woods*, though belonging (ſome of them) to *Monſieur* (his *Royal Brother*) in *Appenage*, to be cut down; till his own *Surveyors*, and *Officers*, have firſt *marked* them out; nor are any *fell'd* beyond ſuch a *circuit*: Then are they ſufficiently *fenc'd* by him who *buys*; and no *Cattle* whatſoever ſuffer'd to be put in, till the very *ſeedlings* which ſpring up of the *Acorns* are perfectly out of danger. And to theſe I might ſuperadd divers others, but I haſten to an end.

The Paræneſis, *and* Concluſion.

1. Since our *Foreſts* are undoubtedly the greateſt *Magazines* of the *wealth*, and glory of this *Nation*; and our *Oaks* the trueſt *Oracles* of the *perpetuity* of our *happineſs*, as being the only ſupport of that *Navigation* which makes us fear'd *abroad*, and flouriſh at *Home*; it has been ſtrangely wonder'd at by ſome good *Patriots*, how it comes to paſs that many *Gentlemen* have frequently repair'd, or gain'd a ſudden *Fortune*, with *plowing* part of their *Parks*, and ſetting out their fat grounds to *Dutch-gard'ners*, *&c.* and very wild *Wood-land* parcels (as may be *inſtanc'd* in ſeveral places) to dreſſers of *Hop-yards*, *&c.* whiles the *Royal portion* lyes folded up in a *Napkin*, uncultivated, and neglected; eſpecially, thoſe *great*, and ample *Foreſts*; where though *plowing*, and *ſowing* has been forbidden, a *Royal command*, and *Deſign*, may well diſpenſe with it, and the breaking up of thoſe *Intervals* advance the growth of the *Trees* to an incredible *Improvement*.

2. It is therefore inſiſted on, that there is not a cheaper, eaſier, or more prompt *expedient* to advance *Ship-timber*, then to ſolicit, that in all his *Majeſties Foreſts*, *Woods*, and *Parks*, the ſpreading *Oak* (which we have formerly deſcribed) be cheriſh'd, by plowing, and ſowing *Barley*, *Rye*, *&c.* (with due ſupply of *culture*, and *ſoil*, between them) as far as may (without danger of the *Plow-ſhare*) be broken up. But this is only where *theſe* Trees are arriv'd to ſome magnitude, and ſtand at competent diſtances; a *hundred*, or *fifty yards* (for their *Roots* derive relief far beyond the reach of any *boughs*) as do the *Walnut-trees* in *Burgundy*, which ſtand in their beſt *plow'd-lands*.

3. But that we may particularize in his *Majeſties Foreſts* of *Dean*, *Sherewood*, *&c.* and in ſome ſort gratifie the *Quæries* of the Honourable the principal *Officers* and *Commiſſioners* of the *Navy*; I am adviſ'd by ſuch as are every way *judicious*, and of long *experience* in thoſe parts; that to *encloſe* would be an excellent way: But it is to be conſider'd, that the *people*, viz. *Foreſters* and *Bordurers*, are not generally ſo *civil*, and reaſonable, as might be wiſhed; and there-

fore

fore to deſign a ſolid *Improvement* in ſuch places, his *Majeſty* muſt aſſert his *power*, with a firme and high Reſolution to *Reduce* theſe men to their due *Obedience*, and to a neceſſity of ſubmitting to their *own*, and the *publick* utility; though they preſerv'd their *induſtry* this way at a very tolerable *rate* upon that *condition*, whiles ſome *perſon* of *truſt*, and integrity did regulate, and ſuperviſe the *Mounds* and *Fences*, and deſtine ſome portions frequently ſet a part, for the raiſing, and propagating of *Woods*, till the whole *Nation* were furniſh'd for *poſterity*.

4. And which work if his *Majeſty* ſhall reſolve to accompliſh, he will leave ſuch an everlaſting *obligation* on his *people*, and raiſe ſuch a *Monument* to his *Fame*, as the *Ages* for a *thouſand* years to come ſhall have cauſe to celebrate his precious *memory*, and his Royal *Succeſſors* to emulate his *Virtue*. For thus (beſides the future expectations) it would in preſent be no deduction from his *Majeſties Treaſure*; but ſome increaſe; and fall in time to be a fair, and worthy *Acceſſion* to it; whiles this kind of *propriety* would be the moſt likely expedient to *civilize* thoſe wild and poor *Bordurers*; and to ſecure the vaſt and ſpreading heart of the *Foreſt*, which with all this *Indulgence* would be ample enough for a Princely *Demeaſnes*: And if the difficulty be to find out who *knows*, or *acknowledges* what are the *Bordures*; this *Article* were worthy, and becoming of as ſerious an *Inquiſition*, as the *Legiſlative* power of the whole *Nation* can contrive.

5. The Sum of all is; get the *Bordures* well *Tenanted*, by long *Terms*, and eaſie *Rents*, and this will invite and encourage *Takers*; whilſt the *middle*, moſt ſecure, and interiour parts would be a *Royal portion*. Let his *Majeſty* therefore admit of any willing *Adventurers* in this vaſt *Circle* for ſuch *Encloſures* in the *Precincts*; and rather of *more*, then of few, though an *hundred*, or *two* ſhould joyn together for any *Encloſure* of *five hundred Acres* more, or leſs; that *multitudes* being thus engaged, the conſideration might procure, and facilitate a full *diſcovery* of latter *Encroachments*, and fortifie the recovery by favourable *Rents*, *Improvements* and *Reverſions* by *Copy-hold*, or what other *Tenures* and *Services* his *Majeſty* ſhall pleaſe to accept of.

6. Now for the planting of *Woods* in ſuch places (which is the only deſign of this whole *Treatiſe*) the *Hills*, and *rough Grounds* will do well; but they are the rich fat *Vales*, and *flats* which do beſt deſerve the charge of *Walls*; ſuch as that *ſpot* affords; and the *Haw-thorn* well plaſh'd (ſingle or double) is a better, and more natural *Fence* then *unmorter'd walls*, could our induſtry arrive to the making of ſuch, as we have deſcrib'd: beſides, they are laſting, and profitable; and then one might allow ſufficient *bordure* for a *Mound* of any thickneſs, which may be the firſt charge, and well ſupported, and rewarded by the culture of the Land thus *encloſed*.

7. For *Example*, ſuppoſe a man would take *in* 500 *Acres* of good *Land*, let the *Mounds* be of the wildeſt ground, as fitteſt for *wood*: Two *hedges* with their *Valations*, and *Trenches* will be requiſite

requiſite in all the Round; *viz.* one next to the *Encloſure*, the *other* about the *Thicket* to fence it from *Cattle*. This between the two *hedges* (of whatſoever breadth) is fitteſt for *Plantation:* In theſe *hedges* might be tryed the plantation of *ſtocks*; in the *intervals* all manner of *wood-ſeeds* ſown (after competent plowings) as *Acorns*, *Maſt*, *Fir*, *Pine*, *Nuts*, *&c.* the *firſt* year chaſing away the *Birds*, becauſe of the *Fir* and *Pine* ſeeds, for reaſons given; the *ſecond* year looſning the ground, and thinning the ſupernumeraries, *&c*, this is the moſt frugal way: Or by another Method the *Waſte* places of *Foreſts* and *Woods* (which by through experience is known and tried) might be perfectly extirpated; and then allowing two or three *plowings*, well-rooted ſtocks be ſet, cut and trimm'd as is requiſite; and that the *Timber-trees* may be excellent, thoſe after wards *copſed*, and the choiceſt *ſtocks* kept ſhreaded. If an *Encloſure* be ſow'd, the *Seeds* may be (as was directed) of all the *ſpecies*, not forgetting the beſt *Pines*, *Fir*, *&c.* whiles the yearly removal of very incumbrances only will repay the *Work-men*, who ſell the *Quick*, or reſerve it to ſtore other Encloſures, and ſoften the circumjacent grounds to the very great improvement of what remains.

9. And how if in ſuch *Fencing-works* we did ſometimes imitate what *Quintus Curtius*, *lib.* 6. has recorded of the *Mardorum gens*, neer to the Confines of *Hyrcania*, who did by the cloſe planting of Trees alone upon the bordures give ſo ſtrange a check to the power of that great Conqueror *Alexander?* They were a barbarous people indeed, but in this worthy our imitation; and the work ſo handſomly and particularly deſcrib'd that I ſhall not grieve to recite it. *Arbores denſæ ſunt de induſtria conſitæ, quarum teneros adhuc ramos manu flectunt, quos intortos rurſus inſerunt terræ: Inde velut ex alia radice lætiores virent trunci: hos, qua natura fert, adoleſcere non ſinunt: quippe alium alii, quaſi nexu conſerunt: qui ubi multa fronde veſtiti ſunt, operiunt terram. Itaque occulti ramorum velut laquei perpetuâ ſepe iter claudunt, &c.* The Trees (*ſaith he*) were planted ſo neer and thick together of purpoſe, that when the boughs were yet young and flexible, bent and wreath'd within one another, their tops were bowed into the earth (*as we ſubmerge our* Layers) whence taking freſh roots, they ſhot up new ſtems, which not being permitted to grow as of themſelves they would have done, they ſo knit and perplex'd one within another, that when they were clad with leaves, they even cover'd the ground, and encloſed the whole Country with a kind of living net, and impenetrable hedge, as the *Hiſtorian* continues the deſcription. ſuch works as theſe would become a *Cato*, or *Varro* indeed, one that were *Pater Patriæ*, *non ſibi ſoli natus* born for Poſterity; but we are commonly of another mould,

——*& fruges conſumere nati.*

10. A fair advance for ſpeedy growth, and noble *Trees* (eſpecially for Walks and Avenues) may be aſſuredly expected from the *Graffing* of young *Oaks*, and *Elms* with the beſt of their kinds; and where the goodlieſt of theſe *laſt* are growing, the ground would be *plow'd*, and finely *raked* in the ſeaſon when the *Scales*

fall; that the ſhowers and dews faſtning the *Seed* where the wind drives it, it may take root, and haſten (as it will) to a ſudden Tree; eſpecially, if ſeaſonable *ſhreading* be appli'd, which has ſometimes made them arrive to the height of twelve foot by the firſt three years, after which they grow a main. And if ſuch were planted as neer to one another as in the *Examples* we have alledg'd, it is almoſt incredible what a *paling* they would be to our moſt expos'd *Plantations* mounting up their wooden *walls* to the clouds: And indeed the ſhelving and natural declivity of the *Ground* more or leſs to our unkind *Aſpects*, and bleak *Winds* does beſt direct to the thickning of theſe protections; and the benefit of *that* ſoon appear, and recompence our induſtry in the ſmoothneſs and integrity of the *Plantations* ſo defended.

11. That great care be had of the *Seeds* which we intend to ſow has been already adviſed; for it has been ſeen that *Woods* of the ſame age, planted in the ſame *ſoil* diſcover a viſible difference in the *Timber* and *growth*; and where this variety ſhould happen if not from the *ſeed* will be hard to interpret; therefore let the *place*, *ſoil* and *growth* of ſuch *Trees* from whence you have your *ſeeds* be diligently examin'd; and why not this, as well as in our care of *Animals* for our breed and ſtore?

12. As to the *Form*, obey the natural *ſite*, and ſubmit to the ſeveral guizes; but ever declining to encloſe *High-ways* and *Common-roads* as much as poſſible. For the reſt, be pleaſed to reflect on what we have already ſaid to encourage the planting of the large ſpreading *Oak* above all that *ſpecies*; the amplitude of the *diſtance* which they require reſign'd to the care of the *Verderer* for grazing *Cattle*, *Deer*, *&c.* and for the great, and *maſculine* beauty which a wild *Quincunx*, as it were, of ſuch *Trees* would preſent to your eye.

13. But to advance his *Majeſties Foreſts* to this height of perfection, I ſhould again urge the removal of ſome of our moſt miſchievous plac'd *Iron-mills*; if that at leaſt be true which ſome have affirm'd, that we had better *Iron*, and cheaper from *Foreigners* when thoſe *Works* were ſtrangers amongſt us. I am inform'd that the *New-Engliſh* (who are now become very numerous, and hindred in their advance and proſpect of the *Continent* by their ſurfeit of the *Woods* which we want) did about twelve years ſince begin to clear their *High-ways* by two *Iron-mills*: I am ſure their zeal has ſufficiently waſted our ſtately *Woods*, and *Steel* in the bowels of their *Mother* old *England*; and 'twere now but expedient their *Brethren* ſhould haſten thither to ſupply us with *Iron* for the peace of our days; whilſt His Majeſty becomes the great *Soveraign* of the *Ocean*, free *Commerce*, *Nemorum Vindex & Inſtaurator magnus*. This were the only way to render both our Countries *habitable* indeed, and the fitteſt *ſacrificè* for the *Royal-Oaks*, and their *Hamadryad's* to whom they ow more then a ſlight ſubmiſſion.

14. Another thing to be recommended (and which would prove no leſs then thirty years, in ſome places forty, and generally twenty years advance) were a good, (if well executed) *Act* to

ſave

ſave our *Standards* and *borduring Trees* from the *Axe* of the Neighbourhood: And who would not preſerve *Timber* when within ſo few years the *price* is almoſt quadrupl'd? I aſſure you ſtandards of 20, 30, or 40 years growth are of a long day for the concernments of a Nation.

15. And though we have in our general *Chapter* of *Copſes* declar'd what by our *Laws*, and common uſage is expected at every *Fell* (and which is indeed moſt requiſite till our ſtore be otherwiſe ſuppli'd) yet might much even of that rigor be abated by no unfrugal permiſſions to take down more of the *Standards* for the benefit of the *Under-woods* (eſpecially where by over-dropping, and ſhade they interrupt the kindly dews, rains and influences which nouriſh them) provided that there were a proportionable number of *Timber-trees* duly, and throughly planted, and preſerved in the *Hedge-rows* and *Bordures* of our grounds: in which caſe even the total clearing of ſome *Copſes* would be to their great advance, as by ſad experience has been taught ſome good *Huſbands*, whoſe neceſſities ſometimes forced them to violate their *Standards*, and more grown Trees during the late *Tyranny*.

16. Nor will it be here unſeaſonable to adviſe, that where *Trees* are manifeſtly perceiv'd to *decay*, they be marked out for the *Axe* that ſo the younger may come on for a ſupply; eſpecially, where they are chiefly *Elms*; becauſe their *ſucceſſors* haſten to their height and perfection in a competent time; but beginning once to grow ſick of *age*, or other infirmity, ſuddenly impair, and loſe much of their value yearly: beſides that the increaſe of *this*, and other ſpeedy *Timber* would ſpare the more *Oak* for *Navigation* and the ſturdier uſes.

How goodly a ſight were it if moſt of the *Demeſnes* of our *Country Gentlemen* were crown'd and incircl'd with ſuch ſtately rows of *Limes*, *Firs*, *Elms* and other ample, ſhady and venerable *Trees* as adorn *New-Hall* in *Eſſex*, the Seat of that *Suffolk Knight* neer *Yarmouth*, and our neighbouring Paſtures at *Barnes*? Yet were theſe Plantations but of late years in compariſon: It were a noble and immortal *providence* to imitate theſe good *Husbands* in larger and more auguſt *Plantations* of ſuch uſeful *Trees* for *Timber* and *Fuel*, as well as for ſhade and ornament to our dwellings.

17. But theſe incomparable undertakings will beſt of all become the *Inſpection* and care of the Honorable *Lieutenants*, and *Rangers*, when they delight themſelves as much in the goodlineſs of their *Trees*, as other men generally do in their *Dogs*, and *Horſes*, for *Races* and *Hunting*; neither of which *Recreations* is comparable to that of *Planting*, either for *virtue* or *pleaſure*, were things juſtly conſider'd according to their true eſtimation: Not yet that I am of ſo *moroſe* an *humour*, that I reprove any of thoſe noble, and manly *Diverſions* ſeaſonably us'd; but becauſe I would court the *Induſtry* of *great*, and opulent *perſons* to *profitable* and permanent *delights*: For ſuppoſe *that* Ambition were chang'd into a laudable *emulation* who ſhould beſt, and with moſt artifice, raiſe a *Plantation* of *Trees* that ſhould have all the proper *orna-*

ments, and *perfections* their *nature* is susceptible of by their direction and encouragement; such as *Ælian*, sums up, *lib.* 25. *c.* 14. εὐγενεῖς οἱ κλάδοι, καὶ ἡ κόμη πολλὴ, &c. kind, and gentle *Limbs*, plenty of large *leaves*; an ample and fair *body*; profound, or spreading *roots*, strong against impetuous *winds*; (for so I affect to read it) extensive, and venerable *shade* and the like: Methinks there were as much a subject of *glory* as could be phancied of the kind; and *comparable*, I durst pronounce, *preferable*, to any of their *Recreations*; and how goodly an *Ornament* to their *Demesnes* and *Dwellings*, let their own *eyes* be the judges. But I now proceed to more general *Concerns*, in order to the *Quæries*, and first to the *proportion*.

18. It were but just, and infinitely befitting the miserable *needs* of the whole *Nation*, that every *twenty Acres* of *Pasture* made an allowance for *half* an *Acre* of *Timber*, to be planted in a *clump*, well preserv'd, and *fenc'd* for 14, or 15 years: And where the young Trees stand too thick, there to *draw*, and *transplant* them in the *Hedge-rows*, which would also prove excellent *shelter* for the *Cattle*: This *Husbandry* would more especially become *Northamptonshire*, *Lincolnshire*, *Cornwall*, and such other of our *Countries* as are the most naked of *Timber*, *Fuel*, *&c.* and unprovided of covert: For it is rightly observ'd, that the most *fruitful places* least abound in *wood*, and do most stand in need of it.

19. Such as are ready to tell ye their *Lands* are so *wet* that their *Woods* do not thrive in them, let them be converted to *Pasture*; or bestow the same industry on them which good *husbands* do in *Meadows* by *draining*: It is a *sloathfulness* unpardonable; as if the *pains* would not be as fully recompenc'd in the growth of their *Timber*, as in *that* of their *grass*: Where poor hungry *Woods* grow, rich *Corn*, and good *Cattle* would be more plentifully bred; and it were beneficial to convert some *Wood-land* (where the proper vertue is exhausted) to *Pasture* and *Tillage*; provided that fresh *land* were improved also to *wood* in recompence, and to balance the other.

20. Where we find *uliginous*, and starv'd places (which sometimes obey no Art or Industry to *drain*, and of which our pale and fading *Corn* is a sure indication) we are, as it were, courted to obey *Nature*; and improve them for the propagation of *Sallyes*, *Willows*, *Alders*, *Scycomor*, *Aspine*, *Birch* and the like hasty and profitable growers, by ranging them, casting of *Ditches*, *Trenches*, *&c.* as before has been taught.

21. In the mean while 'tis a thing to be deplor'd, that some persons bestow more in *grubbing*, and dressing a few *Acres* which has been excellent *wood*, to convert it into wretched *pasture*, not worth a quarter of what the *Trees* would have yielded, well order'd, and left standing; since it is certain, that *barren land* planted with *wood* will *trebble* the *expence* in a short time: This I am able to confirm by instancing a *noble person*, who (a little before our unhappy *Wars*) having sown three or four *Acres* with *Acorns*, the fourth year *transplanted* them which grew too thick all about his

Lordship

Lordſhip: Theſe Trees are now of that *ſtature*, and ſo likely to prove excellent *Timber*, that they are already judg'd to be almoſt as much worth as the whole *Demeſnes*; and yet they take *off* nothing from other *profits*, having been diſcreetly diſpos'd of at the firſt *deſignment*. The Prince *Elector Fredric* IV, in the *year* 1606. ſow'd a part of that moſt barren *Heath* of *Lambertheim* with *Acorns* after *plowing*, as I have been inform'd; it is now likely to prove a moſt goodly *Foreſt*, though all this while miſerably neglected by reaſon of the *Wars*.

The Right Honorable my Lord *Viſcount Mountague* has planted many thouſands of *Oaks*, which I am told he draws out of *Copſes*, big enough to defend themſelves; and that with ſuch ſucceſs as has exceedingly improv'd his *poſſeſſions*; and it is a worthy *example*. To conclude, I can ſhew an *Avenue* planted to a houſe ſtanding in a barren *Park*, the ſoil a cold *Clay*; it conſiſts totally of *Oaks*, one hundred in number: The *perſon* who firſt ſet them (dying very lately) lived to ſee them ſpread their *branches* 123 foot in compaſs, which at diſtance of 24 foot mingling their ſhady *treſſes* for above 1000 in length, form themſelves into one of the moſt venerable and ſtately *Arbour-Walks* that in my life I ever beheld: This is at *Baynards* in *Surrey*, and belonging to my moſt honour'd Brother (becauſe a moſt induſtrious Planter of wood) *Richard Evelyn* Eſq. The Walk is broad 56 foot, and one Tree with another containing by eſtimation three quarters of a *load* of *Timber* in each Tree, and in their *lops* three *Cord* of fire-wood: Their bodies are not of the talleſt, having been *topped* when they were young to reduce them to an uniform *height*; yet is the *Timber* moſt excellent for its ſcantling, and for their heads few in *England* excelling them: where ſome of their contemporanries were planted ſingle in the *Park* without cumber, they ſpread above *fourſcore* foot in *arms*.

22. I have produced theſe *Examples* becauſe they are *conſpicuous*, full of *encouragement*, worthy our *imitation*; and that from theſe, and ſundry others which I might enumerate, we have made this obſervation, that almoſt any *ſoil* is proper for ſome profitable *Timber-trees* or other which is good for very little elſe.

23. The bottoms of *Downs's* and like places well *plow'd*, and *ſown* will bear luſty *Timber*, being *broken up*, and let lye till *Midſummer*, and then *ſtirr'd* again before *ſowing* about *November:* ſo likewiſe in moſt *craggy*, *uneven*, *cold* and expoſed places, not fit for *Arable*, as in *Biſcay*, *&c.* And it is truly from theſe *Indications*, more then from any other whatſoever, that a broken, and decaying *Farmer* is to be diſtinguiſh'd from a ſubſtantial *Freeholder*, the very *Trees* ſpeaking the *conditions* of the *Maſter:* let not then the *Royal Patrimony* bear a *Bankrupts* reproach: But to deſcend yet lower;

24. Had every *Acre* but *three*, or *four Trees*, and as many of *Fruit* in it as would a little adorn the *Hedge-rows*, the *Improvement* would be of fair advantage in a few years; for it is a ſhame that *Turnep-planters* ſhould demoliſh and undo *hedge-rows* neer *London*,

London, where the *Mounds* and *Fences* are ſtripp'd naked to give *Sun* to a few miſerable *Roots*, which would thrive altogether as well under them being skilfully *prun'd* and lopp'd: Our *Gard'ners* will not believe me, but I know it to be true, though *Pliny* had not affirm'd it: As for *Elms* (ſaith he) their *ſhade* is ſo *gentle* and *benigne*, that it *nouriſhes* whatſoever grows *under* it: and (*lib. 17. c. 22.*) it is his opinion of all other *Trees* (very few *excepted*) provided their branches be par'd away, which being diſcreetly done, improves the *Timber* as we have already ſhew'd.

25. Now let us *calculate* a little at adventure, and much within what is both *faiſible*, and very *poſſible*; and we ſhall find, that *four Fruit-trees* in each *Acre* throughout *England*, the product ſold but at *ſix pence* the *Buſhel*, will be worth above a *Million* yearly: What then may we reaſonably judge of *Timber*, admit but at the *growth* of *four pence* per *Acre* yearly, (which is the loweſt that can be eſtimated) it amounting to neer *two Millions*? if (as 'tis ſuppos'd) there may be *five* or *ſix* and *twenty Millions* of *ſquare Acres* in the *Kingdom* (beſides *Fens*, *High-ways*, *Rivers*, *&c.* not counted) and without reckoning *in* the *Maſt*, or *loppings*, which whoſoever ſhall *calculate* from the annual *Revenue* the *Maſt* only of *Weſtphalia*, a ſmall and wretched Country in *Germany* does yield to that *Prince*, will conclude to be no deſpicable *Improvement*.

26. In this poor *Territory*, every *Farmer* does by ancient *cuſtom* plant ſo many *Oaks* about his *Farme* as may ſuffice to feed his *Swine*: To effect this, they have been ſo careful, that when of late years the *Armies* infeſted the poor *Country*, both *Imperialiſts*, and *Proteſtants*, the only Biſhoprick of *Munſter* was able to pay *eight hundred thouſand* Crowns *per menſem* (which amounts of our *money* to 25000 *li. Starling*) beſides the ordinary *entertainment* of their own *Prince* and *private Families*. This being incredible to be practis'd in ſo extream barren a *Country* I thought fit to mention either to encourage, or reproach us: *General Melander* was wont to ſay, The good Huſbandry of their *Anceſtors* had left them this ſtock *pro ſacra Anchorâ*; conſidering how the People were afterward reduc'd to live even on their *Trees* when the *Souldiers* had devour'd their *Hogs*; redeeming themſelves from great extremities by the *Timber* which they were at laſt compell'd to cut down, and which, had it continu'd, would have proved the utter deſolation of that whole *Countrey*. I have this *Inſtance* from my moſt worthy and honourable Friend Sir *William Curſius* (His *Majeſties Reſident* in *Germany*,) who receiv'd this *particular* from the mouth of *Melander* himſelf: In like manner the *Princes*, and *Freedoms* of *Heſſe*, *Saxony*, *Thuringia*, and divers other places *there*, make vaſt incomes of their *Foreſt-fruit* (beſides the *Timber*) for *Swine* only. I ſay then, whoſoever ſhall duly conſider this will finde *planting* of *Wood* to be no contemptible *Addition*; beſides the *Paſture* much improv'd, the *cooling* of fat, and heavy *Cattle*, keeping them from injurious motions, diſturbance and running as they do

do in *Summer* to finde *ſhelter* from the *heat*, and vexation of *Flyes*.

27. But I have done, and it is now time for us to get out of the *Wood*, and to recommend *this*, and all that we have propos'd to His moſt *Sacred Majeſty*, the Honourable *Parliament*, and to the *Principal Officers*, and *Commiſſioners* of the *Royal Navy*; that where ſuch *Improvements* may be made, it be ſpeedily, and vigorouſly proſecuted; and where any *defects* appear, they may be duly reformed.

28. And what if for this purpoſe there were yet ſome additional *Office* conſtituted, which ſhould have a more univerſal *Inſpection*, and the charge of all the *Woods* and *Foreſts* in His *Majeſties Dominions*? This might eaſily be perform'd by *Deputies* in every *County*, Perſons judicious, and ſkilful in *Huſbandry*; and who might be repair'd to for advice and direction: And if ſuch there are at preſent (as indeed our *Laws* ſeem to provide) that their *Power* be ſufficiently amplified where any thing appears deficient; and as their zeal excited by worthy encouragements; ſo might neglects be encounter'd by a vigilant and induſtrious *Checque*. It ſhould belong to their *Province* to ſee that ſuch proportions of *Timber*, *&c.* were *planted*, and ſet out upon every hundred, or more of *Acres*, as the Honorable *Commiſſioners* have ſuggeſted; or, as might be thought convenient, the *quality*, and *nature* of the *places* prudently conſider'd: It ſhould be their *Office* alſo to take notice of the *growth*, and *decay* of *Woods*, and of their *fitneſs* for publick *uſes* and *ſale*, and of all theſe to give *Advertiſements*, that all defects in their ill governing may be ſpeedily remedied; and the Superiour *Officer*, or *Surveyor* ſhould be accomptable to the *Lord Treaſurer*, and to the *principal Officers* of His *Majeſties* Navy for the time being: And why might not ſuch a *Regulation* be worthy the eſtabliſhing by ſome *Solemn*, and publick *Act* of *State* becoming our glorious *Prince* SOVEREIGN OF THE SEAS, and his prudent *Senate* this preſent *Parliament*?

29. We find in *Ariſtotles Politics* the Conſtitution of *Extraurban Magiſtrates* to be *Sylvarum Cuſtodes*, and ſuch were the *Conſulares Sylvæ* which the great *Cæſar* himſelf (even in a time when *Italy* did abound in *Timber*) inſtituted; and was one of the very *firſt* things which he did at the *ſetling* of that vaſt *Empire* after the *Civil Wars* had exceedingly waſted the Country: *Suetonius* relates it in the life of *Julius*; and *Peter Crinitus* in his fifth Book *De honeſta diſciplina*, c. 3. gives this reaſon for it, *Ut materies* (ſaith he) *non deeſſet, qua videlicet Navigia publica poſſent à præfecturis Fabrûm confici:* True it is, that this *Office* was ſometimes call'd *Provincia minor*; but for the moſt part annex'd and joyn'd to ſome of the greateſt *Conſuls* themſelves; that facetious *ſarcaſme* of the *Comœdian* (where *Plautus* names it *Provincia caudicaria*) referring onely to ſome under-*Officer* ſubſervient to the other: And ſuch a *charge* is at this day extant amongſt the noble *Venetians*, and other prudent *States*; not to importune you with the expreſs *Laws* which *Ancus Martius* the Nephew of *Numa*,

and

and other *Princes* long before *Cæſar* did ordain for this very purpoſe; ſince indeed the *care* of ſo publick and honourable an *Enterprize* as is this of *Planting*, and *Improving* of *Woods*, is a right *noble* and *royal undertaking*; as that of the *Foreſt* of *Dean*, *&c.* in particular (were it bravely manag'd) an *Imperial deſign*; and I do pronounce it more worthy of a *Prince* who truly conſults his *glory* in the higheſt *Intereſt* of his *Subjects*, then that of gaining *Battels*, or ſubduing a *Province*: And if in ſaying ſo, or any thing elſe in this ruſtic *Diſcourſe*, I have us'd the freedom of a plain *Foreſter*; it is the *perſon* you command me to *put on*, and my *plea* is ready,

Theocriti Sco. vide Adagium.

Δρυὸς παρέσης πᾶς ἀνὴρ ξυλεύεται.

Præſente Quercu *ligna quivis colligit.*

for who could have ſpoken *leſs* upon ſo ample a *Subject*? and therefore I hope my *zeal* for it in theſe *Papers*, will (beſides your *Injunctions*) excuſe the prolixity of this *Digreſſion*, and all other the *Imperfections* of my Services.

Si canimus Sylvas, Sylvæ *ſunt* Conſule *dignæ.*

FINIS.

POMONA,

OR AN

APPENDIX

CONCERNING

FRUIT-TREES,

In relation to

CIDER,

The *Making* and ſeveral ways of *Ordering* it.

VIRG. Eclog. ix.

———*Carpent tua Poma nepotes.*

LONDON,

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To the Right Honorable

THOMAS

Earl of *SOUTHAMPTON*,

Lord HIGH TREASURER OF ENGLAND, &c.

My Lord,

IF great *Examples* did not ſupport it, the dignity and greatneſs of your *Perſon* would ſoon have given cheque to this preſumption: But ſince *Emperours* and *Kings* have not only gratefully accepted *Works* of this nature, but honor'd them likewiſe with their own ſacred hands, that *Name* of yours (which ought indeed never to appear but in Inſtruments of *State* and fronts of *Marble*, conſecrating your *Wiſdom* and *Vertues* to *Eternity*) will be no way leſſen'd by giving Patronage to theſe appendant *Ruſticities*. It is from the Protection and Cheriſhment of ſuch as your *Lordſhip* is, that theſe *Endeavours* of ours may hope one day to ſucceed and be proſperous. The nobleſt and moſt uſeful Structures have laid their Foundations in the *Earth*: if that prove firme *here* (and *firme* I pronounce it to be, if your *Lordſhip* favour it) We ſhall go on and flouriſh. I ſpeak now in relation to the *Royal Society*, not my ſelf, who am but a *Servant* of it only, and a *Pioner* in the *Works*. But be it's *fate* what it will, Your *Lordſhip*, who is a *Builder*, and a lover of all *Magnificences*, cannot be diſpleas'd at theſe agreeable Acceſ-

ſories

ſories of *Planting*, and of *Gard'ning*. But, my *Lord*, I pretend by it yet ſome farther ſervice to the *State* then that of meerly profit, if in contributing to your diverſement I provide for the *Publick health*, which is ſo precious and neceſſary to it in your excellent *Perſon*. Vouchſafe *POMONA* your *Lordſhips* hand to kiſs, and the humble *Preſenter* of theſe *Papers* the honor of being eſteem'd,

My *Lord*,

Your moſt humble, and moſt

obedient *Servant*

J. EVELYN.

POMONA,

Or An APPENDIX Concerning

FRUIT-TREES,

In relation to

CIDER:

The Making, and ſeveral ways of Ordering it.

THE PREFACE.

At Quercus *was the* Proverb; *and it is now time to walk out of the* Woods *into the* Fields *a little, and to conſider what Advancement may be* there *likewiſe made by the planting of* FRUIT-TREES. *For after the* Earth *is duly cultivated, and pregnant with a Crop of* Grain; *it is onely by the Furniture of ſuch* Trees *as bear* Fruit, *that it becomes capable of any farther* Improvement. *If then by diſcovering how* this *may beſt be effected I can but raiſe a worthy emulation in our* Countrey-men; *this addition of noble* Ornament, *as well as of* Wealth *and* Pleaſure, Food *and* Wine, *may (I preſume) obtain ſome grateful admittance amongſt all promoters of Induſtry.*

Ἄλις δρυός: *in eos, qui relicto victu ſordido, ad elegantiorem lautioremq; digrediuntur.*

But before I proceed, I muſt, and do ingenuouſly acknowledge, that I preſent my Reader *here with very little of my* own, *ſave the pains of* collecting *and* digeſting *a few diſpers'd* Notes *(but ſuch as are to me exceedingly precious) which I have receiv'd*; ſome, *from worthy, and moſt experienc'd* * Friends *of mine*; *and* others, *from the well-furniſh'd* Regiſters, *and* Cimelia *of the* ROYAL SOCIETY. *Eſpecially, thoſe* Aphoriſms, *and* Treatiſes *relating to the* Hiſtory *of* Cider, *which by expreſs commands they have been pleas'd to injoyn I ſhould publiſh with my* Sylva.

* Eſpecially, from the moſt excellently learned Mr. *Beale*, of *Yeavill* in *Somerſetſhire*, a Member of the Royal Society.

It is little more than an Age, *ſince* Hopps *(rather a* Medical, *than* Alimental *Vegetable) tranſmuted our wholeſome* Ale *into* Beer; *which doubtleſs much alter'd our* Conſtitutions: That *one* Ingredient *(by ſome not unworthily ſuſpected) preſerving* Drink *indeed, and ſo by cuſtom made agreeable; yet repaying the pleaſure with tormenting Diſeaſes, and a ſhorter life, may deſervedly abate our fondneſs to it; eſpecially, if with* this *be conſider'd likewiſe, the* caſualties *in planting it, as ſeldom ſucceeding more than* once *in* three *years; yet requiring conſtant charge and culture; Beſides that it is none of the leaſt devourers of young* Timber.

And what if a like care, *or indeed one quarter of it, were (for the future) converted to the propagation of* Fruit-trees, *in all parts of this* Nation, *as it is already in* ſome, *for the benefit of* Cider? *(one* Shire

alone within twenty *miles* compaſs, *making no leſs*, yearly, *than* Fifty thouſand Hogſheads) *the* commutation *would (I perſwade my ſelf) rob us of no great Advantage*; *but preſent us with one of the moſt delicious and wholeſome* Beverages *in the World.*

It was by the plain Induſtry *of one* Harris (*a* Fruiterer *to King* Henry *the* Eighth) *that the* Fields, *and* Environs *of about thirty* Towns, *in* Kent *onely, were planted with* Fruit, *to the univerſal benefit, and general Improvement of that* County *to this day*; *as by the noble example of my Lord* Scudamor, *and of ſome other publick ſpirited* Gentlemen *in thoſe parts, all* Hereford-ſhire *is become, in a manner, but one intire* Orchard: *And when his* Majeſty *ſhall once be pleas'd, to command the* Planting *but of ſome* Acres, *for the beſt* Cider-fruit, *at every of his Royal* Manſions, *amongſt other of his moſt laudable* Magnificences; Noblemen, wealthy Purchaſers, *and* Citizens *will (doubtleſs) follow the* Example, *till the preference of* Cider, *wholeſome, and more natural* Drinks, *do quite vanquiſh* Hopps, *and baniſh all other* Drogues *of that nature.*

But this Improvement (*ſay ſome*) *would be generally obſtructed by the* Tenant *and* High-ſhoon-men, *who are all for the* preſent profit; *their expectations ſeldome holding out above a year or two at moſt.*

To this 'tis anſwer'd; *That therefore ſhould the* Lord *of the* Mannour *not onely encourage the* Work *by his own* Example, *and by the Applauſe of ſuch* Tenants *as can be courted to* delight *in theſe kindes of* Improvements; *but ſhould alſo oblige them by* Covenants *to* plant *certain* Proportions *of them, and to* preſerve *them being planted.*

To fortifie this profitable Deſign, *It were farther to be deſir'd, that an* Act *of* Parliament *might be procur'd for the Setting but of two or three* Trees *in every* Acre *of inclos'd Land, under the Forfeiture of Six-pence* per *Tree, for ſome* publick *and* charitable Work, *to be levy'd on the* Defaulters. *To what an innumerable multitude would* this, *in few years, inſenſibly mount*; *affording infinite proportions, and variety of* Fruit *throughout the* Nation, *which now takes a* Potion *for a refreſhment, and drinks its very* Bread-corn!

I have ſeen a Calculation *of twenty* Fruit-trees *to every* Five-*pounds of yearly* Rent; *fourty to* Ten; *ſixty to* Fifteen; *eighty to* Twenty; *and ſo according to the proportion. Had all our* Commons, *and* Waſte-lands, *one* Fruit-tree *but at every* hundred foot *diſtance, planted, and fenc'd at the publick charge, for the benefit of the* Poor, (*whatever might dy and miſcarry*) *enough would eſcape able to maintain a* Stock, *which would afford them a moſt incredible relief. And the* Hedg-rows, *and the* Champion-grounds, Land-diviſions, Mounds, *and* Head-lands (*where the* Plough *not coming, 'tis ever abandon'd to* Weeds *and* Briars) *would add yet conſiderably to theſe* Advantages, *without detriment to any man.*

As touching the Species, *if much have been ſaid to the preference of the* Red-ſtrake *before other* Cider-Apples, *this is to be added*; *That as the beſt* Vines, *of richeſt* liquor, *and greateſt* burden, *do not ſpend much in* wood *and unprofitable* branches; *ſo nor does this* Tree: *For though other* Cider *may ſeem more pleaſant* (*ſince we decline to give* Judgment *of what is unknown to us*) *we yet attain our purpoſe, if* This *ſhall appear beſt to reward the* Planter, *of any in preſent practiſe*; *eſpecially, for the* generality; *becauſe it will fit the moſt* parts *which are addicted to theſe* Liquors, *but miſs of the right* kinds, *and prove the moſt ſecure from external injuries and Invaders.*

Not

Not to refine upon the rare effects of Cider, *which is above all the most eminent, ſoberly to exhilerate the* Spirits *of us* Hypochondriacal Illanders, *and by a* ſpecific quality *to chaſe away that unſociable* Spleen, *without exceſs; the very* Bloſſome *of the* Fruit *perfumes, and puriſies the Ambient* Air, *which (as M.* Beale *well obſerves in his* Hereford-ſhire Orchards) *is conceiv'd conduces ſo much to the conſtant* Health *and* Longævity, *for which that* Country *has been always celebrated, fencing their* Habitations *and ſweet* Receſſes *from* Winds, *and* Winter-*invaſions, the heat of the* Sun, *and his unſufferable darts:* And if (*ſaith he*) we may acknowledge grateful *trifles*, for that they harbour a conſtant *Aviary* of ſweet *Singers*, which are *here* retain'd without the charge of *Italian* wires: *To which I cannot but add his following option*, That if at any time we are in danger of being hindred from *Trade* in Forreign *Countries*, our *Engliſh* Indignation may ſcorn to feed at their *Tables*, to drink of their *Liquors*, or otherwiſe to borrow or buy of *Them*, or of any their *Confederates*, ſo long as our *Native ſoyle* does ſupply us with ſuch excellent Neceſſaries. *Hereford-ſh. Orch.* p. 8.

Nor is all this produc'd to redeem the Liquor *from the* ſuperſtition, prejudice, *and* opinions *of thoſe* Men *who do ſo much magnifie the* juice *of the* Grape *above it: If Experiments from undenyable ſucceſs (in ſpite of* Vintners, *and* Bauds *to mens* Palats) *were ſufficient to convince us, and reclaim the* vitiated; *or that it were poſſible to diſpute of the* pleaſantneſs, riches, *and* præcedency *of* Drinks *and* Diets, *and ſo to provide for fit, competent, and impartial* Judges; *when by* Nature, Nation, *or* Climate (*as well as by* Cuſtom *and* Education) *we differ in thoſe Extreams.*

Moſt parts of Africa, *and* Aſia *prefer* Coffee *before our Nobleſt Liquors*; India, *the* Roots *and* Plants *before our beſt Cook'd* Veniſon; *Almoſt all the World* crude water, *before our Country* Ale *and* Beer; *and we* Engliſh *being generally more for* inſipid, luſcious, *and* groſs *Diet, then for the* ſpicy, poignant, oylie, *and highly* reliſh'd, (*witneſs our univerſal hatred of* Oyls, French-wine, *or* Rheniſh *without* Sugar; *our doating on* Currans, Figgs, Plum-pottage, Pies, Pudding, *and* Cake) *renders yet the difficulty more arduous. But to make good the* Experiment.

About thirty years ſince one M Taylor (*a perſon well known in* Hereford-ſhire) *challeng'd a* London-Vintner (*finding him in the* Country) *That he would produce a* Cider *which ſhould excel his beſt* Spaniſh *or* French-wine: *The* Wager *being depoſited,* He *brings in a good* Redſtrake *to a private Houſe: On that* Scene, *all the* Vintner *could call to be* Judges *pronounce againſt his* Wine; *Nor would any man there drink* French-wine (*without the help of* Sugar) *nor endure* Sack *for a full draught*; *and to Thoſe who were not accuſtomed to either, the more racy* Canaries *were no more agreeable then* Malaga, *too luſcious for the repetition. But this* Wager *being loſt, our* Vintner *renews his* Chartel, *upon theſe expreſs terms, of Competent and Indifferent* Arbitrators: *The* Gentleman *agrees to the Articles*; *and* thus *again after mutual engagements it muſt be debated who were Competent* Judges, *and abſolutely Indifferent. M^r* Taylor *propoſes* Three, *whereof the* odd Number *ſhould by* Vote *determine: They muſt be of the fitteſt* Ages *too, or rather the fitteſt of all* Ages, *and ſuch as were inur'd neither to* Cider *nor any* Wine; *and ſo it was agreed. The* Judges *convene*; viz. *A* Youth *of ten years old, a* Man *of thirty, and a* Third *of ſixty*; *and by* All theſe *alſo our* Vintner

lost the Battel. But this is not enough; *'Tis assay'd again by Nine* Judges, *the* Ternary *thrice over*; *and* there *'tis lost also. And here I will conclude*; *for I think never was fairer* Duel; *nor can more be reasonably pretended to vindicate this* Blessing *of* God, *and our Native* Liquor *from their contempt, and to engage our* Propagators *of it.*

Tot veneficiis placere cogitur, & miramur noxium esse Vinum? Plin.

To sum up all: If Health *be more precious then* Opinion, *I wish our Admirers of* Wines, *to the prejudice of* Cider, *beheld but the* Cheat *themselves*; *the* Sophistications, Transformations, Transmutations, Adulterations, Bastardizings, Brewings, Trickings, *and* Compassings *of this Sophisticated* God *they adore*; *and that they had as true an* Inspection *into those* Arcana Lucifera, *which the* Priests *of his* Temples (*our* Vintners *in their* Taverns) *do practise*; *and then let them drink freely that will*; Ἄριστον μὲν ὕδωρ; —— Give me good *Cider.*

As 'tis most ingeniously cited by Dr *Charleton*, in his excellent Discourse of the *Adulterations of Wine*, entered into the Register of the *Royal Society*; and (with those other most useful *Pieces* subjoyn'd) worthy to be published.

It is noted in our Aphorisms *how much this* Beverage *was esteemed by His late* Majesty, *and* Court, *and there referr'd to all the* Gentry *of the invironing* Country, (*no Strangers to the best* Wines) *when for several* Summers *in the* City *of* Hereford (*so encompass'd with Store of it, and brought thither without* charge, *or extraordinary* subductions) *it was sold for* sixpence *the* Wine-quart, *not for the* scarcity, *but the* excellency *of it: And for the* Red-strake, *that it has been seen* there *hundreds of times* (*with vehement and engaged competition*) *compar'd with the* Cider *of other the most celebrated Fruit, when after a while of vapour, no Man stood for any other* Liquor *in comparison.*

But it is from these Instances (*may some say*) *when the* World *shall have multiplied* Cider-Trees, *that it will be time enough to give* Instructions *for the right* Pressing, *and* Preserving *of the* Liquor. *The Objection is fair: But there are already more* Persons *better furnish'd with* Fruit, *then with* Directions *how to* use *it as they should*; *when in plentiful years so much* Cider *is impair'd by the ignorant* handling, *and becomes dead and sowr, that many even surfeit with the* Blessing; *it being rarely seen in most* Countries, *that any remains good, to supply the defects of another year*; *and the* Royal Society *would prevent all this hazard by this free Anticipation.*

It now remains, that I should make some Apology *for my self, to extenuate the tumultuary* Method *of the ensuing* Periods. *Indeed it was not intended for a queint or elaborate piece of* Art; *nor is it the design of the* Royal Society *to accumulate* Repetitions *when they can be avoyded*; *and therefore in an* Argument *so much beaten as is that of dressing the* Seminary, Planting, *and modes of* Graffing, *it has been with Industry avoided*; *such rude, and imperfect* draughts *being far better in their esteem* (*and according to my Lord* Bacon's) *then such as are adorn'd with more* pomp, *and ostentous* circumstances, *for a pretence to* Perfection. *The Time may come when the* richness, *and* fullness *of their* Collections *may worthily invite some more Industrious* Person *to accompliss that* History *of* Agriculture, *of which these* Pieces (*like the limbs of* Hippolytus) *are but* scattered parts: *And it is their greatest ambition for the* Publique Good, *to provide such* Materials, *as may serve to* Raise, *and* Beautifie *that most desirable* Structure.

EVELYN.

POMONA.

CHAP. I.

Of the Seminary.

WE had not the leaſt intention to enlarge upon this *Title*, after we had well reflected on the many and accurate Directions which are already publiſhed, as well in our *French-Gardiner*, as in ſundry other *Treatiſes* of that nature, had not a moſt worthy *Member* of the *Royal Society* (to whom we have infinite Obligations) furniſh'd us with ſome things very *particular* and *remarkable*, in order to the *improvement* of our *Seminaries*, *Stocks*, &c. which are indeed the very *Baſis* and *Foundation* of *Cider-Orchards*. It is from thoſe precious *papers* of *his*, and of ſome *others* (whoſe Obſervations alſo have richly contributed to this *Enterprize*) that we ſhall chiefly entertain our *Planter* in moſt of the following Periods.

Mr. Beale *of* Yeavil *in* Somerſetſhire.

Mr. Buckland.

Whoſoever expects from the *kernel* of a rich or peculiar *Apple* or *Pear* to raiſe *Fruit* of the *ſame kind*, is likely to find many obſtructions and diſappointments: For the *Wilding*, (*Crab* or *Pear*) *Pomus Sylveſtris*, being at the beſt the natural product of the ſoundeſt *kernel* in the firmeſt land, and therefore the guſt of the *Fruit* more ſtrongly auſtere, fierce, and ſharp, and alſo the *Fruit* leſs and more woody; and the pleaſanter or plumper and larger *Apple* being the effect of ſome inteneration, which inclines to a kind of rebatement of the natural ſtrength of the Tree; the beſt choice of *kernels* for *Stocks* indefinitely, (and on which we may graff what we pleaſe) ſhould be from the ſoundeſt *Wilding*. For;

A *kernel* taken from any *graffed-Apple*, as *Pepin*, *Pear-main*, &c. does moſt naturally propend to the wildneſs of the *Stock* on which 'twas inſerted, as being the natural mother of the *kernel*, which is the very heart of the *Apple*; and alſo from a more deep and ſecret *Reaſon*, to be hereafter unfolded.

Apples and *Pears* requiring rather a vulgar and ordinary *Field-land*, then a rich *Garden-mould*, (as has been often experienc'd by frequent Obſervations) it has been found that *kernels* ſowed in a very high *compoſt*, and rank earth, have produced (*large* indeed) but *inſipid* Fruit, haſtily rotting on the Trees, before all the parts of it were mature. *Vid. Aphor.* 33.

And ſometimes when they ſeemed in outward *figure* to bear the ſhape of graffed *Apples*, from whence the *kernels* came, yet the guſt did utterly deceive, wanting that vivacity and pungent agreeableneſs.

If the *kernels* of natural *Apples* (or of *ungraffed Trees*) ſhould produce the ſame, or ſome other variety of *Apples*, (as ſometimes it ſucceeds) yet would this care be ſeldom *operæ pretium*, and at beſt but a work of *Chance*, the diſappointment falling out ſo often through the fickleneſs of the *Soil*: Or admit *that* the moſt proper and conſtant, yet would the very *dews* and *rain*, by various and mutable Seaſons, and even by the *Air* it ſelf, (which operates beyond vulgar perception, in the very changes as well of the *mould*, as of the *ſeeds* and *fruit*) create almoſt infinite alterations: And the choice having been in all places (apparently for ſome *thouſands* of years) by propagating the moſt delicate of *Fruits* by the *Graffs*, 'tis almoſt a deſperate task to attempt the raiſing of the *like*, or *better* Fruit from the rudiments of the *Kernel*.

Yet ſince our deſign of relieving the want of *Wine*, by a *Succedaneum* of *Cider*, (as lately improv'd) is a kind of *Modern Invention*, We may encourage and commend their patience and diligence who endeavour to raiſe ſeveral kinds of *Wildings* for the tryal of that excellent Liquor; eſpecially ſince by late experience we have found, that *Wildings* are the more proper *Cider-Fruits*; ſome of them growing more ſpeedily, bearing ſooner, more conſtantly, and in greater abundance in leaner Land, much fuller of *juice*, and that more maſculine, and of a more *Winy* vigour.

Thus the famous *Red-ſtrake* of *Hereford-ſhire* is a pure *Wilding*, and within the memory of ſome now living ſirnamed the *Scudamores Crab*, and then not much known ſave in the *Neighbourhood*, &c. Yet now it would be difficult to ſhew that *Red-ſtrake* which grew from a *kernel* in that whole *Tract*, all being ſince become *graffed* Trees. Thus 'tis alſo believed, That the *Blomsbery Crab* (which carries the fame in ſome parts of *Gloceſter-ſhire*) and many of the White *Muſts*, and Green *Muſts*, are originally *Savages*; as now in *Somerſet-ſhire* they have a generous *Cider* made of promiſcuous *kernels*, or *ungraffed* Trees, which fills their confidence that no other *Cider* does exceed it; and 'tis indeed ſtrong, and ſufficiently heady.

Nor dare we poſitively deny, but that even the beſt of our *Table-fruit* came alſo originally from the *kernel*: For though it be truly noted by my L. *Bacon*, *That the* Fruit *does generally obey the* Graff, *and yields very little to the* Stock; yet ſome little it does.

The famous *Bezy de Hery*, an excellent Musky *Pear*, was brought into the beſt *Orchards* of *France* from a *Foreſt* in *Bretainy*, where it grew *wild*, and was but of late taken notice of.

But now to the deep *Reaſon* we lately threatned: We have by an Experiment found ſome neer affinity between the *Kernel* of the *Apple* and the *heart* or interiour of the *Stock*: *For I ſaw* (ſays Mr *Beale*) *an old rotten* Kernel-Tree *bearing a delicate* Summer-fruit, *yielding ſtore of ſmooth* Cider, (*'tis call'd the* French-Kernel-Tree, *and is alſo a* Dwarf, *as is the* Red-ſtrake;) *and examining divers* Kernels, *many years ſucceſſively, of that hollow and decayed Tree, I found them always very ſmall of growth, and empty, meer skins of* Kernels, *not unlike to the emaſculated* Scrotum *of an* Eunuch; *another*

ther younger Tree, iſſuing from the ſounder part of a Root *of the ſame old Tree, had full and entire* Kernels.

And from ſome ſuch Obſervation might the production of *Berberies*, &c. without *Stones*, be happily attempted; an *Inſtrument* fitted to take out the *marrow* or *pith* of the *Branches*, (as the ſame Mr *Beale* perform'd it ;) for from the *numerical* Buſh of that *Fruit* he found *ſome* Branches produce *Berberies* that had no ſtones, *others* which had; and in ſearching for the *cauſe* of the *effect*, perceived, that the pith or heart was taken from the *radicat*, or main Branches, as the other was full of pith, and conſequently the fruit in perfection; of all which (he writes me word) he made ſeveral tryals on other fruit, but left the place before he could ſee the event. But he adds;

Theſe many years (almoſt twenty*) I have yearly tri'd* Kernels *in Bedds of clean* Earth, Pots *and* Pans, *and by the very* leaves *(as they appear'd in firſt ſpringing for one moneth) I could diſcern how far my* Eſſays *had* civiliz'd *'em: The* Wilder *had ſhorter, ſtiffer, brown, or fox-colour'd leaves: The more* ingenuous *had more tender, more ſpreading leaves, and approaching the lighter verdure of the* Berbery *leaf when it firſt appears.* He adds,

Some Apples *are call'd* Roſe-Apples, Roſemary-Apples, Gilly-flower-Apples, Orange-Apples, *with ſeveral other adjuncts, denominating them, from what* Reaſon *I know not.* But if we intended to try ſuch *infuſions* upon the *Kernels* (as ſhould endeavour to alter their *kinds*) we ſhould not approve of the bedabbling them with ſuch infuſions, (for over-*moiſture* would rather enervate then ſtrengthen them) but rather prepare the *Earth* the *year before*, with ſuch *inſuccations*, and then hinder it from producing any *Weeds*, till ready for the Kernels, and then in dewy times, and more frequently when our *Climate* were ſurcharg'd with *rain*, cover the *Beds* and *Pots* with the ſmall leaves of *Roſemary*, *Gillyflowers*, or other oderiferous *Bloſſomes*, and repeat it often, to the end the *dews* may *meteorize*, and draw forth their finer *Spirits*, &c. And thus alſo we are in this *Age* of ours provided of more vigorous *Ingredients* for *trials* then were known to the *Ancients*. Finally,

From what has been deduc'd from the *Wilding* of ſeveral parts, it may manifeſtly appear, how much more *congeneal* ſome *ſoil* is then other, to yield the beſt *Cider-fruit* from the *Kernel*; and the *hazzle* ground, or quicker mould, much better then the more obſtinate *clay* or ranker earth.

CHAP. II.

Of Stocks.

THe former thus eſtabliſh'd, after all *humours* and *varieties* have been ſufficiently wearied, we ſhall find the *Wilding* to be the hardieſt and moſt proper *Stock* for the moſt delicate *Fruit*:

This confirm'd by *Varro*, *lib.* 1. *cap.* 40. *In quamcunque arborem inſeras*, &c. and 'tis with reaſon: However they do in *Herefordſhire*, both in practice, and opinion, limit this *Rule*; and to preſerve the guſt of any delicate *Apple* (as of the *Pear-main*, *Quince-Apple*, *Stockin*, &c.) rather graff upon a *Gennet Moyle* or *Cyder Stock*, (as there call'd) then a *Crab-ſtock*; but then indeed they conclude the Tree laſts not ſo long; and 'tis obſerv'd, That *Apples* are better taſted from a clean, light land, &c. then from ſtiffer clay of the more pinguid and luxurious ſoil.

Thus in like manner our Maſter *Varro*, *loco citato* concerning *Pears*; *Si in Pyrum Sylvaticam*, &c. The *Wild-ſtock* does enliven the dull and phlegmatic *Apple*, and the Stock of a *Gennet-Moyle* ſweeten and improve the *Pepin*, &c. or may rather ſeem to abate at leaſt ſome *Apple* over-tart and ſevere.

Your *Crab-ſtock* would be planted about *October*, at thirty two Foot diſtance, and not *graffed* till the third *Spring* after, or at leaſt, not before the *ſecond*.

But if your deſign be for *Orchard* only, and where they are to abide, an *interval* of ſixteen Foot ſhall ſuffice, provided the ground be yearly turn'd up with the *Spade*, and the diſtance quadrupled where the *Plough* has priviledge; this being the moſt expedite for ſuch as have no *Nurſery* ground.

Crab-ſtocks are better then Sets of *Apple Kernels* to graff on, becauſe they impart a more juicy and tart reliſh, and ſo are to be preferred for moſt ſorts of *Apples*.

CHAP. III.

Of Graffs *and* Inſitions.

MAke choice of your *Graffs* from a conſtant and well-bearing Branch.

And as the *Stock* hath a more verdant rind, and is capable to yield more plenty of *juice*, ſo let the *Graff* have more *Eyes* or *Budds:* Ordinarily three or four *Eyes* are ſufficient to give iſſue to the *Sap*; but as well in *Apples*, and *Pears*, as in *Vines*, thoſe *Graffs* or *Cions* are preferr'd in which the *budds* are not too far aſunder, or diſtant from the foot thereof: And ſuch a number of *buds* uſually determining the length of the *Graff*, there may divers *Cions* be made of one *Branch*, where you cannot procure plenty of them for ſeverals.

As to the ſucceſs of *graffing*, the main *skill* is, to joyn the inward part of the *Cion* to the *ſappy* part of the *Stock*, cloſely, but not too forceably; that being the beſt and moſt infallible way, by which moſt of the quick and juicy parts are mutually united, eſpecially towards the bottome.

If the *Stock* be ſo big as to endanger the pinching of your *Graff*, when

when the *wedge* is drawn out of the *cleft*, let the inner ſide of the *Graff*, which is within the wood of the *Stock*, be left the thicker, that ſo the *woody* part of the *Cion* may bear the ſtreſs, and the *ſappy* part be preſerved from bruiſing.

Chooſe the ſtreighteſt and ſmootheſt part of the *Stock* for the place where you intend to *graff*: If the *Stock* be all knotty (which ſome eſteem no impediment) or crooked, rectifie it with the fitteſt poſture of the *Graff*.

For a *Graff* covet not a *Cions* too ſlender; for the *Sun* and *Wind* will ſooner enforce it to wither: Yet are we to diſtinguiſh, that for *Inoculation* we take the *Bud* from a ſprig of the laſt years ſhoot; and moſt allow that the *Cions* ſhould alſo have ſome of the former with it, that it may be the ſtronger to *graff*, and abide to be put cloſe into the *Stock*, which is thought to advance it in bearing.

In *Hereford-ſhire* they do frequently chooſe a *Graff* of ſeveral years growth; and for the *graffing* of ſuch large *Stocks* as are taken out of the *Woods* or *Nurſeries*, and fitted into rows for *Orchards*, they chooſe not the *Graffs* ſo ſmall as in other *Countries* they require them; which has, it ſeems, occaſion'd ſome complaint from them that underſtand not the Reaſon of the firſt branch of this Note. Once for all, The ſtumpy *Graff* will be found much ſuperiour to the ſlender one, and make a much nobler and larger Shoot. This upon experience.

Graff your *Cions* on that ſide of the *Stock* where it may receive the leaſt hurt from the *South-weſt* Wind, it being the moſt common, and moſt violent that blows in *Summer*; ſo as the *wind* may blow it *to* the *Stock*, not from it: And when the *Zephyres* of the *Spring* are ſtirring, chooſe that *Seaſon* before all others for this work.

Some there are who talk of removing the *Stock* about *Chriſtmas*, and then alſo *graff* it; which there be that glory they can ſucceſfully do even by the fire ſide, and ſo not be forc'd to expect a two or three years rooting of the *Stock*; But in this *Adventure* 'tis adviſeable to plunge the *Graff* three or four inches deep in the *Stock*. Laſtly,

Be careful that the *Rain* get not into the *clefts* of your young graffed *Stocks*: Yet it has been noted, That many old Trees (quite decay'd with an inward hollowneſs) have born as full burdens, and conſtantly, as the very ſoundeſt, and the Fruit found to be more delicate then uſually the ſame kind from a perfect and more entire Stock.

Except ſome former caſe requires it, leave not your *Graffs* above four, five, or (at moſt) ſix inches of length above the *Stock*; for by the length it draws more feebly, and is more expos'd to the ſhocks of the *Wind*, or hurt by the *Birds*; and you ſhall frequently perceive the ſummities and tops of ſuch young *Graffs* to be mortified and die.

Now for encouragment in tranſporting *Graffs* at great diſtance, we find that with little care (their tops uncut and unbruis'd) they will

will hold good, and may ſupport the tranſportation by *Sea* or *Land* from *October* or *November* to the very end of *March*: *See Sir H. Plat's Offers*, Paragr. 75. To which may be added, That if the *Graff* receives no hurt by lying in the *Stock* expos'd to all rain, dews, and ſeverities of *Winter* froſts from *December* to *Spring*, (as has been experimentally noted); then (by a ſtronger preſumption) in oyled, or rather waxen Leather, it may undoubtedly eſcape. Some preſcribe, That the *ends* ſhall be ſtuck in a *Turnip*: And many excellent *Graffers* (*Gentlemen* ſome of very good credit) have aſſured us, That the *Graffs* which ſeemed withered, and fit to be caſt away, have proved the beſt when tri'd. Thus in honeſt *Barnaby Googes* noble *Heresbachius* you will finde it commended to gather your *Cions* in the *wane* of the *Moon*, at leaſt ten days before you *graff* them; and *Conſtantine* gives this reaſon for it, That the *Graff* a little withered, and thirſty, may be the better received of the *Stock*: There are alſo other inducements for this practice, as *Simon Harwood*, *pag.* 4. has ſhew'd us; but none beyond our own *experience*, who have known *Graffs* gathered in *December* thrive and do perfectly well.

CHAP. IV.

Of Variety *and* Improvements.

IF any man would have *variety* of unexpected and unknown *Apples* and *Pears*, for the improvement of *Cider*, or *Palate-fruit*, there is more hope from *Kernels* rais'd in the *Nurſery* (as has already been directed) then from ſuch tryals of *graffings* as we have yet ſeen in preſent uſe.

But if we would recover the patience, and the ſedulity of the *Antient* (of which ſome brief account will follow) or liſten to ſome unuſual Propoſals, then may we undertake for ſome variety by *Inſitions*.

To delude none with promiſes, we do much rather recommend the diligence of inquiring from all *Countries* the beſt *Graffs* of ſuch *Fruits* as are already found excellent for the purpoſe we deſign: As from the *Turgovians* for that Pear of which Mr. *Pell* gives ſo good and weighty informations.

But as ſome ſorts are to be inquired after for the *Palate* and the *Table*, ſo 'tis now our main buſineſs to ſearch after ſuch as are excellent for their *Liquor*, either as more *pleaſant*, more *winy*, or more *laſting*; of which ſort the *Bosbury bare-land*-Pear excels. The *Red-ſtrake*, *Bromebury-Crab*, and that other much celebrated *Wilding* call'd the *Oaken-pin*, as the beſt for *Cider*; though for ſufficient reaſons none of them comparable to the *Red-ſtrake*.

But to purſue the diligence of the *Antients*, we direct the eye to a general expedient for all kinde of *varieties* imaginable, and which

which we hold far better then to preſent the World with a *Liſt* of the particulars either known, or experimented: For who indeed but a *Fool* will dare to tell *Wonders* in this ſevere *Age*, and upon an *Argument* which is ſo environ'd with *Impoſture* in moſt *Writers*, old or new? Much leſs pretend to *Experiments* which may fail to ſucceed by default of a happy Agent, when the *concluſion* muſt be, *Penes Authorem ſit fides!*

And truly men receive no ſmall diſcouragement from the ugly affronts of *Clowns*, and leſs cultivated perſons, who laugh and ſcorn at every thing which is above their underſtanding: For example; *I knew a man* (writes Mr. *Beale* to me) *and he a moſt diligent* Planter *and* Graffer, *who for thirty or fourty years made innumerable* Eſſays *to produce ſome* change *of an* Apple *by* graffing: *It ſeems he was ambitious to leave his* Name *on ſuch a* Fruit, *if* he *could have obtain'd it; but always fail'd; for he perpetually made his* Trials *upon* Crab-ſtocks, *or ſuch* (*at leaſt*) *as did not greatly differ from the* kind; *and he ever found that the* Graff *would* prædominate. And how infinitely ſuch Men having loſt their own aims, will deſpiſe better *Advice*, we leave to obſervation.

However, let us add, That where nothing is more facile then to raiſe new kinds of *Apples* (*in infinitum*) from *Kernels*: Yet in that *Apple-Country* (ſo much addicted to *Orchards*) we could never encounter more then *two* or *three* perſons that did believe it: But in other places we meet with many that, on the other ſide, repute *Wildings*, or (as they call them) *Kernel-fruit*, at all adventure, and without choice, to be the very beſt of *Cider-fruit*, and to make the moſt noble Liquor. So much does the common judgment differ in ſeveral *Countries*, though at no conſiderable diſtance, even in *matters* of viſible *Fact*, and *epidemical* experience.

It was our excellent Friend Mr. *Buckland* who ſent us word of one in *Somerſet-ſhire*, who by *graffing* any *White Apple* upon an *Elm* changes the *Apple*, and particularly to a *red* colour: He directs us where we may be eye-witneſſes of the proof, and alſo to a *Clergyman* hard by, who loſt his labour in the ſame *Attempt*, by the periſhing of the *Graffs*; ſo as by his Advice we are not over-haſtily to erect *Hercules*'s *Pillars*; and renders his Reaſons, encouraging our *Experiments*.

To gratifie yet the *Ingenious*, inſtruct others, and emancipate us all from theſe *baſtinado-Clowns*, we are furniſh'd with many *Arguments* and proofs to aſſure a good ſucceſs, at leaſt for *variety* and *change*, if not for infinite *choice*: Two or three antient *References* being duly præmis'd; namely, Firſt,

1. That 'tis in vain to expect change of *Apples* from *graffing* upon differing *Stocks* of *Crabs*, or *Apples*.

2. In vain alſo are we to look for a kind Tree from a very much differing *Stock*; as an altered *Pear* to grow kindly on a *Crab* or *Apple-ſtock*, *& contra*. There go about indeed ſome *jugglings*, but we diſdain to name them.

It is one thing to finde the kindeſt *Stock* for the Improvement of any Fruit; as the *Crab-ſtock* for the delicate Apple, the *Wild* or *Black-*

Black-Cherry-Stock, for the *graffs* of the faireſt *Cherries*; the largeſt *Vine*, (whoſe root makes beſt ſhift for relief) to accept the *Graff* of the more delicate *Vine*, &c. And another thing it is to ſeek the *Stock* which begets the wonder, variety, and that ſame tranſcendent and particular excellency we inquire after: For this muſt be at more remote diſtance; and we offer from the *Ancients* to ſhew, how it may be at any diſtance whatſoever: But this is ſalved by Sir *H. Plat*'s expedient, *Paragr.* 72. viz. *If two Trees grow together, that be apt to be graffed one into another, then let one branch into another, workmanly joyning Sap to Sap.* This our *Gardiners* call *Graffing by Approach.*

But in this *Rule* he is too narrow for our purpoſe, and far ſhort of old experience: As alſo in *Parag.* 63. where he affirms, *We may not graff a contrary Fruit thereon.* Againſt *this* we urge; That any contrary *Fruit* may be adventured, and any Fruit upon any fruitleſs *Stock* growing neer in the ſame *Nurſery*: If it be not only affirm'd, but ſeriouſly undertaken, and experimentally proved by the ſober *Columella*, in ſeveral of his Treatiſes; Turn to the *eleventh* Chapter of his *fifth* Book, (*Stephens* Edition:) *Sed cum Antiqui negaverint poſſe omne genus ſurculorum in omnem Arborem inſeri, & illam quaſi finitionem, qua nos paulò ante uſi ſumus, veluti quandam legem ſanxerint, eos tantùm ſurculos poſſe coaleſcere, qui ſint cortice, ac libro, & fructu conſimiles iis arboribus quibus inſeruntur, exiſtimavimus errorem hujus opinionis diſcutiendum, tradendàmque poſteris rationem, qua poſſit omne genus ſurculi omni generi Arboris inſeri.* And the example follows in a *Graff* of an *Olive* into a *Fig-ſtock* by *Approach* (as we call it,) which he alſo repeates in the twenty ſeventh *Chapter* of his Book *De Arboribus*, without altering a ſyllable. But poſſibly in this *check* at the *Ancient* he might aim at old *Varro*, whom we finde threatning no leſs then *Thunderbolts* and *Blaſts* to thoſe who ſhould attempt theſe ſtrange *Marriages*, and did not ſort the *Graff* with the *Tree*; conſult *lib.* 1. *cap.* 40. But thus you ſee this *Art* aſſum'd by *Columella* for his own invention (1500 years ſince) to be no news to *Varro* 200 years older; where he goes on, *Eſt altera ſpecies ex arbore in arborem inſerendi nuper animadverſa in arboribus propinquis*, &c. Though here again we may queſtion our Maſters *nuper animadverſa* too; ſince before he was born *Cato* relates it as uſual to *Graff* Vines in the manner by them preſcribed, *cap.* 41. *Tertia inſitio eſt: Terebra vitem quam inſeres*, &c. Which makes us admire how the witty *Walchius* in his Diſcourſe *De vitibus fructuariis*, pag. 265. could recount the *graffing* of *Vines* amongſt the wonders of *Modern Inventions.*

But it ſeems *Varro* and his *Contemporaries* did extend the practice beyond *Cato*; and *Columella* proceeded further then *Varro*, even to all ſorts of Trees, however differing in nature, quality, barke, or ſeaſon: And then *Palladius* aſſumes the reſult, and gives us the particulars of the ſucceſs in his *Poem*, *De Inſitionibus.* And to theſe four as in chief (no phantaſtical or counterfeit perſons) we refer the Induſtrious.

But

But be pleas'd to take this note alſo: As ſoon as your *Graff* hath proper'd a *ſecond*, or at fartheſt a *third* years growth, take it off the *Stock*, and then graff it upon a *Stock* of a more *natural* kind: For in our own *Trials* we have found a *graff* proſper the ſecond year exceeding well; yet the third the whole growth at once blaſted quite to the very *Stock*, as if *Varro*'s Augurs had ſaid the word.

To this add, the making uſe of ſuch *Stocks* as in this *Experiment* may contribute ſome ſpecial aid to ſeveral kinds of humane *Infirmities*: As ſuppoſe the *Birch* Tree for the *Stone*, the *Elm* for *Fevers*, &c.

Moreover, To *graff* rather the *Wilding*, or *Crab*, then the *Pepin*, becauſe the *Wilding* is the more natural; and *Nature* does more delight in *progreſs*, then to be *Retrograde* and go backwards.

I ſhould alſo expect far more advance from a more *pungent ſap*, then from *Inſipid*; as generally we ſee the beſt and vigorous *juices* to ſalute our *Palats* with a more agreeable *piquancy* and tartneſs; for ſo we find the relliſh of the *Stocking-Apple*, *Golden Pepin*, *Pearmain*, *Eliot*, *Harvy*, and all (but *Ruſſetings* and *Greenings*) to be more poignant then of others.

But we muſt note from *Palladius*, That the *Ancients* had the ſucceſs which we all, and particularly Sir *H. Plat* does ſo frequently deny, as in the particular of *graffing* the *Apple* on the *Pear*, *& contra*. Let us hear him *de Pomo*.

Inſita proceris pergit concreſcere ramis,
Et ſociam mutat malus amica Pyrum:
Seque feros ſylvis hortatur linquere mores,
Et partu gaudet nobiliore frui.
Pallad. de Inſitionib. *lib.* 14.

And this will ſhew us, That *Virgil*, and *Columella*, in ſeveral of his wonderfull Relations of theſe kinds of mixture, (which but for the prolixity we might now recite) did not ſo far effect *Wonders* as to deſert the truth.

You may alſo obſerve, That as well the *French Gardiner*, and our *Modern Planters*, have found more benefit from the *Stock* of the *Quince* then old *Palladius* did, it ſeems, diſcern.

Cum præſtet cunctis ſe fulva cydonia pomis,
Alterius nullo creditur hoſpitio.
Roboris externi librum aſpernata ſuperbit,
Scit tantum nullo creſcere poſſe decus.
Sed propriis pandens cognata cubilia ramis,
Stat, contenta ſuum nobilitare bonum.
Pallad. de *Malo Cydonio*.

Laſtly, We did by unexpected chance find the facility of *graffing* the very youngeſt *Stocks*, even of one years growth, by the *Root*: At a ſecond removal of the *Stocks* (being then of two years

growth) we obſerved ſome *Roots* ſo faſt cloſed together into one, as not to be divorced: Hereupon we concluded, If caſualty, or negligence, chance of ſpade, or oppreſſion of neighbourhood did this, by *Art* it might be done more effectually, and poſſibly to ſome deſirable purpoſe; for that then the *Stock* was more apt to receive a maſtering *Impreſſion*; and any *Garden* Plant whatſoever might by this *proceſs* interchange and mingle their *Roots*.

And thus we have preſented our diligent *Ciderift* with what Obſervations and Arguments of Encouragement, grounded on frequent *Experience*, we have received from our moſt ingenious *Correſpondents*, eſpecially the Learned and truly Candid Mr *Beale*, in whoſe *Perſon* we have ſo long entertain'd you: And to theſe we could add ſundry others, were it not now time (whiles we diſcourſe of *poſſibilities*) to conclude with ſomething *certain*, and to ſpeak of what we have.

For the kinds then of *Cider-Apples* in being; *Gloceſter-ſhire* affects the *Bromsbury Crab*; It affords a ſmart, winy *Liquor*, and is peculiarly hardy, but not ſo proper for a cold and late-bearing *Climate*, it being not ripe in *hot Land* till the end of *Autumn*, nor fit to be ground for *Cider* till *Chriſtmas*, lying ſo long in heaps and preparation.

It is in the ſame *Shire* that they likewiſe much eſteem of the *white* and *red Muſt-Apple*, the ſweeteſt as well as ſowreſt *Pepin*, and the *Harvy-Apple*, which (being boyl'd) ſome prefer to the very beſt of all *Ciders*.

But about *London*, and the more Southern *Tracts*, the *Pepin*, and eſpecially the *Golden*, is eſteemed for the making of the moſt delicious of that *Liquor*, moſt wholeſom, and moſt reſtorative; and indeed it may (in my poor judgment) challenge thoſe *perfections* with very good reaſon.

By others the *Pearmain* alone is thought to come in competition with the beſt; but the *Cider* is for the moſt part found of the weakeſt, unleſs encourag'd with ſome agreeable *Pepin* to inſpirit it. Some commend the *Fox-Whelp*; and the *Gennet-Moyle* was once preferr'd to the very *Red-ſtrake*, and before the *Bromsbury-Crab*; but upon more mature conſideration, the very *Criticks* themſelves now *Recant*, as being too effeminate and ſoft for a *judicious* Palate.

The *Redſtrake* then amongſt theſe accurate *Taſters* hath obtained the abſolute præeminence of all other *Cider-fruit*, eſpecially in *Hereford-ſhire*, as being the richeſt and moſt *vinous* Liquor, and now with the more earneſtneſs commended to our practice, for its celerity in becoming an *Orchard*, being ordinarily as full of *Fruit* at *ten* years growth as other Trees are at *twenty*; the *Pepin* or *Pearmain* at thirty: And laſtly, from that no contemptible quality, That 'tis ſo wicked a Fruit upon the *Tree* as needs no *Priapus* for protector, ſince (as beautiful as 'tis to the *eye*) it has ſo curſed a taſte in the *Mouth* till it be converted into *Cider*.

See Aph. 42. 45. 37.

In ſum, The *Red-ſtrake* will at three years *graffing* give you fair hopes, and laſt almoſt an hundred years: And the *Gennet-Moyles* haſten

haſten to an *Orchard* for *Cider* without trouble of *Art* or *Graffing*: But note, That this *Tree* is very apt to contract *a bur-knot* neer its Trunk, where it begins to divide; and being cut off under that *boſs*, commonly grows (if ſo ſet) and becomes ſpeedily a Tree, except it encounter an extraordinary dry *Summer* the firſt year to give it check. And though the knack of *graffing* be ſo obvious, yet this more appearing facility does ſo pleaſe the lazy *Clowns*, that in ſome places they neither have nor deſire any other *Orchards*; and how this humour prevails you may perceive by the haſty progreſs of our *Kentiſh Codlin* in moſt parts of *England*.

See C. Taylor's *Diſcourſe of* Cider.

But to advance again our *Red-ſtrake*, even above the *Pepin*, and the reſt (beſides the celerity of the improvement and conſtant burthen) conſider we the moſt incredible product, ſince we may expect from each *Apple* more then double the quantity; ſo as in the ſame *Orchard*, under the ſame *culture*, thirty *Red-ſtrake* Trees ſhall at ten years *graffing* yield more *Cider* then a *hundred* of thoſe *Pepins*, and ſurmount them in proportion during their period at leaſt ſixty or ſeventy years: So that granting the *Cider* of the *Golden-Pepin* ſhould excel, (which with ſome is precarious) yet 'tis in no wiſe proper for a *Cider-Orchard*, according to our general deſign, not by half ſo *ſoon bearing*, nor ſo *conſtantly*, nor in that *quantity*, nor *fulneſs* or *ſecurity*.

Concerning *Perry*, the *Horſe-Pear* and *Bare-land-Pear* are reputed of the beſt, as bearing almoſt their weight of ſpriteful and *vinous* Liquor. The Experienced prefer the *tawny* or *ruddy* ſort, as the colour of all other moſt proper for *Perry*: They will grow in *common-fields*, *gravelly*, *wild*, and *ſtony* ground, to that largeneſs, as *one* only *Tree* has been uſually known to make three or four *Hogſheads*: That of *Bosbury*, and ſome others, are ſo tart and harſh that there is nothing more ſafe from plunder, when even a *Swine* will not take them in his mouth. But thus likewiſe would the abundance preſerve theſe Fruits, as we ſee it does in *Normandy*.

Aph. 43. Aph. 34.

CHAP. V.

Of the Place *and* Order.

WE do ſeriouſly prefer a very wild *Orchard*, as mainly intended for the publick utility, and to our *purpoſe* of obliging the *People*, as with a ſpeedy *Plantation* yielding ſtore for *Cider*: Upon this it is that we do ſo frequently inculcate, how well they thrive upon *Arable*, whiles the continuing it ſo accelerates the growth in almoſt half the time: And if the *Arable* can be ſo levell'd, (as commonly we ſee it for *Barly*-land) then without detriment it may aſſume the Ornament of *Cyrus*, and flouriſh in the *Quincunx*.

If it be *ſhallow* Land, or muſt be rais'd with high *Ridges*, then

'tis neceſſary to have more regard of planting on the *tops* of thoſe eminencies, and to excuſe the unavoydable breach of the *decuſſis*, as my Lord *Verulam* excuſeth the defect of our humane *phanſies* in the *Conſtellations*, which obey the *Omnipotent* order rather then ours: Add to this the rigour of the *Royal Society*, which approves more of *plainneſs* and *uſefulneſs*, then of *niceneſs* and *curioſity*; whiles many putting themſelves to the vaſt chagre of levelling their grounds, oftentimes make them but the worſe; ſince where the places are full of gaſtly inequalities, there may be planted ſome ſorts of *Cider-Fruit*, which is apt by the great burden to be preſs'd down to the ground, and there (whiles it hides *Irregularities*) to bear much better, and abundantly beyond belief; for ſo have been ſeen many ſuch recumbent *Pear-trees* bear each of them *two*, *three*, yea, even to *ſix* or more *Hogſheads* yearly.

And for this *Cider*, whiles we prefer ſome ſorts of *Wildings* which do not tempt the *palate* of a *Thief*, by the caution we ſhall not provoke any man to repent his charge from the neceſſity of richer and more reſerv'd *Encloſures*; Though we have frequently ſeen divers *Orchards* ſuccesfully planted on very poor *Arable*, and even in ſtony *Gleab*, *gravel*, and *clay*, and that pretty high, on the ſides and declivities of *Hills*, where it only bears very ſhort graſs, like to the moſt ordinary *Common*, not worth the charge of *Tillage*: And yet even there the *Tenants* and *Confiners* ſometimes encloſe it for the *Fruit*, and find their reward, though not equally to ſuch *Orchards* as are planted on better ground, and in the Vallies. Hence we ſuggeſt, That if there be no *Statute* for it, 'twere to be wiſhed there were a *Law* which ſhould allow *endeavours* of this nature out of the *Common-field*, to encloſe for theſe *Encouragements*, ſince both the *Publick* and the *Poor* (whatever the clamour is) are advantaged by ſuch *Encloſures*, as *Tuſſer* in his old Rhimes, and all indifferent obſervers apprehend with good reaſon.

True indeed it is, That all Land is not fit for *Orcharding*, ſo as even where to form juſt *Incloſures*, being either too *ſhallow* and *dry*, or too *wet* and *ſterving*: *But this* (ſaith the judicious M *Buckland*) *we may aver, That there are few* Pariſhes *or* Hamlets *in* England *where there are not ſome fat and deep* Headlands *capable of* Rows *of* Trees; *and that* (*as hath been ſaid*) *the raiſed* Banks *of all* Incloſures *generally by the advantage of the depth, fatneſs, and health of their Mould, yield ready opportunitie for planting*; (*yea, and in many* Countries *multitudes of* Crab-ſtocks *fit to be* graffed;) *in which latter* (ſaith he) *I have frequently obſerved very goodly Fruit-bearing Trees, when in the ſame ſoil* Trees *in* Orchards *have been poor and worth nothing.* To conclude,

If the ſoil be very bad and unkind, any other *Fruit* (which it may more freely yield without requiring much depth, and leſs *Sun*) may be planted in ſtead of *Apples*.

CHAP. VI.

CHAP. VI.

Of Tranſplanting, *and* Diſtance.

THe moſt proper ſeaſon for *Tranſplanting* is before the hard froſts of *Winter* ſurprize you, and that is a competent while before *Chriſtmas*: And the main point is, to ſee that the *Roots* be larger then the *Head*; and the more ways that extends the better and firmer.

If the *Stock* ſeems able to ſtand on its own three or four legs (as we may call 'em), and then after ſettlement ſome ſtones be heaped or laid about it, as it were gently wedging it faſt, and ſafe from winds, (which *ſtones* may after the ſecond or third year be removed) it will ſalve from the main danger: For if the *Roots* be much ſhaken the firſt *Spring*, it will hardly recover it.

You may tranſplant a *Fruit-Tree* almoſt at any tolerable *ſeaſon* of the *Year*, eſpecially if you apprehend it may be ſpent before you have finiſh'd your work, having many to remove: Thus, let your *Trees* be taken up about *Allhallontide*, (or as ſoon as the *leaf* begins to fall); then having trimm'd and quickned the *Roots*, ſet them in a *Pit*, fourty, fifty, or a hundred together, yet ſo as they may be cover'd with mould, and kept very freſh: By the *Spring* they will be found well cured of their *wounds*, and ſo ready to ſtrike *root* and put forth, that being *Tranſplanted* where they are to ſtand, they will take ſuddenly, and ſeldom fail; whereas being thus cut at *Spring*, they recover with greater hazard.

The very *Roots* of *Trees* planted in the ground, and buried within a quarter of an Inch, or little more, of the level of the *Bed*, will ſprout, and grow to be very good *Stocks*. This and the other being Experiments of our own, we thought convenient to mention.

By the oft removal of a *Wild-ſtock*, cutting the ends of the *Roots*, and diſ-branching ſomewhat of the *Head* at every *change* of *place*, it will greatly abate of its natural *wildneſs*, and in time bring forth more *civil* and *ingenuous* Fruit: Thus *Gillyflowers* do (by oft removals, and at *full-Moon* eſpecially) increaſe and multiply the leaves.

Plant not too *deep*; for the *over-turf* is always richer then the *next* Mould. How material it is to keep the *coaſt* or ſide of the *Stock*, as well in *Fruit-trees* as in *Foreſt*, we have ſufficiently diſcuſs'd; nor is the Negative to be prov'd.

For the *diſtance* in *Fields*, they may be ſet from *thirty two* to *ſixty* Foot, ſo as not to hinder the *Plough*, nor the benefit of manure and ſoil; but in hedg-rows as much nearer as you pleaſe, Sun and Air conſidered. *See* Aph. 35.

CHAP. VII.

CHAP. VII.

Of the Fencing.

SEeing a *Cider-Orchard* is but a wild Plantation, beſt in *Arable* well enclos'd from *Beaſts*, and yet better on the Tops, Ridges, and natural Inequalities, (though with ſome loſs of Order, as we ſhew'd,) one of the greateſt diſcouragements is the *preſerving* of our *Trees* being planted, the raiſing of them ſo familiar.

We have in our *Sylva* treated in particular of this, as of one of the moſt material *obſtacles*; wherein yet we did purpoſely omit one *Expedient*, which came then to our hands from the very Induſtrious Mr. *Buckland* to the Learned Mr. *Beal*: You ſhall have it in his own words.

This of Fencing *ſingle* Trees *uſeth to be done by* Rails *at great charges*; *or by* Hedges *and* Buſhes, *which every other year muſt be renew'd, and the* materials *not to be had in all places neither. I therefore prefer and commend to you the enſuing form of* Planting *and* Fencing, *which is more cheap and eaſie, and which hath other* Advantages *in it, and not commonly known. I never ſaw it but* once, *and that imperfectly perform'd; but have practis'd it* my ſelf *with* ſucceſs: *Take it thus.*

Set your Tree *on the* Green-ſwarth, *or five or ſix* inches *under it if the* ſoil *be very healthy*; *if* moiſt *or* weeping, *half a foot above it*; *then cut a* Trench *round that* Tree, *two foot or more in the* cleare *from it: Lay a rank of the* Turfs, *with the* graſs *outward, upon the* inner *ſide of the* Trench *towards your* Plant, *and then a* ſecond *rank upon the former, and ſo a* third, *and* fourth, *all orderly plac'd, (as in a* Fortification) *and leaning towards the* Tree, *after the form of a* Pyramide, *or larger* Hop-hill: *Always as you place a row of* Turfs *in compaſs, you muſt fill up the* inner *part of the* Circle *with the looſe Earth of the ſecond* ſpit *which you dig out of your* Trench, *and which is to be two foot and half wide, or more, as you deſire to mount the* hillock, *which by this means you will have rais'd about your* Plant *near three foot in heighth. At the* point *it needs not be above two foot or eighteen inches diametre, where you may leave the* Earth *in form of a* Diſh, *to convey the* Rain *towards the* body *of the Tree*; *and upon the top of this* hillock *prick up five or ſix ſmall* Briars *or* Thorns, *binding them lightly to the body of the* Plant, *and you have finiſh'd the work.*

The commodities *of this kind of* Planting *are,*

Firſt, *Neither* Swine, *nor* Sheep, *nor any other ſort of* Cattel *can annoy your* Trees.

Secondly, *You may adventure to ſet the ſmaller* Plants, *being thus raiſed, and ſecur'd from the reach of* Cattel.

Thirdly, *Your* Trees *faſten in the* Hillock *againſt violence of* Winds, *without* Stakes *to fret and* canker *them.*

Fourthly,

Fourthly, *If the* ſoil *be* wet *it is hereby made* healthy.

Fifthly, *If very* dry, *the* hillock *defends from the outward* heat.

Sixthly, *It prevents the* Couch-graſs, *which for the* firſt *years inſenſibly robs moſt plants in ſandy grounds apt to* graze. *And,*

Laſtly, *The* grazing bank *will recompence the nigardly* Farmer *for the waſte of his* Ditch, *which otherwiſe he will ſorely bethink.*

In the ſecond *or* third *year (by what time your* Roots *ſpread) the* Trench, *if the* Ground *be moiſt, or* Seaſons *wet, will be neer fill'd up again by the treading of* Cattel; *for it need not be cleanſed; but then you muſt renew your* Thorns: *Yet if the* Planter *be curious, I ſhould adviſe a caſting of ſome ſmall quantity of* rich Mould *into the bottome of the* Trench *the ſecond year, which may improve the growth, and invite the* Roots *to ſpread.*

In this manner of Planting, *where the* ſoil *is not rich, the exact* Planter *ſhould add a little quantity to each Root of Earth from a frequented* High-way, *or* Yard *where* Cattel *are kept; One* Load *will ſuffice for ſix or ſeven* Trees; *this being much more proper then* rotted ſoil *or* looſe Earth; *the fat Mould beſt agreeing with the* Apple Tree.

The broader and deeper your Ditch *is, the higher will be your* Bank, *and the ſecurer your* Fence; *but then you muſt add ſome good Earth in the ſecond year, as before.*

I muſt ſubjoyne, That only Trees *of an* upright growth *be thus planted in* open grounds; *becauſe ſpreading of low growing* Trees *will be ſtill within reach of* Cattel *as they encreaſe: Nor have I met with any inconvenience in this kind of* Tranſplanting, (*which is applicable to all ſorts of* Trees) *but that the* Mole *and the* Ant *may find ready entertainment the firſt year, and ſometime impairs a weak rooted* Plant; *otherwiſe it rarely miſcarries. In ſum,*

This manner of Fencing *is ſoon executed by an indifferent* Workman, *who will eaſily ſet and guard* fix Trees *in a* Winter *day.* Thus far Mr *Buckland:* To which we ſhall only add, That thoſe which are planted in the *Hedg-rows* need none of theſe defences; for (I am told) in *Hereford-ſhire* in the Plantations of their *Quick-ſets*, or any other, all men did ſo *ſuperſtitiouſly* place a *Crab-ſtock* at every *twenty foot* diſtance, as if they had been under ſome rigorous *Statute* requiring it.

CHAP. VIII.

Of Pruning, *and* Uſe *of the* Fruit-Trees.

THe *Branches* are to be *lopp'd* in proportion to the bruiſes of the *Roots*, whoſe *fibres* elſe ſhould only be quickned, not altogether cut off nor intangled: For the *Top*, let a little of each arm be lopp'd in *Cider-fruit* only; but for the *Pears*, cut two or three *buds* deep at the ſummities of their aſpiring *Branches*, juſt above

above the *eye* ſlanting; this will keep them from over-haſty mounting, reduce them into *ſhape*, and accelerate their *bearing*.

To this we add again out of Mr *Beals Hereford-ſhire Orchards*, pag. 23. *In a* graffed plant *every* Bough *ſhould be lopped at the very tops, in* Apples *and* Pears, *not in* Cherries *and* Plums.

In a natural Plant *the* Boughs *ſhould not at all be* lopped, *but ſome taken off cloſe to the* Trunk, *that the Root at firſt* Tranſplantation *be not engag'd to maintain too many* Suckers. *And this muſt be done with ſuch diſcretion, that the* Top-branches *be not too cloſe together; for the natural* Plant *is apt to grow* ſpiry, *and thereby fails of fruitfulneſs. Therefore let the reſerved* Branches *be divided at a convenient roundneſs.*

The Branches *that are cut off may be ſet, and will grow, though ſlowly.*

If the Top *prove* ſpiry, *or the fruit* unkind, *then the due remedy muſt be in re-*graffing. See *Chap.* xxviij. *in Sylva.*

Beſides the Perrys, dri'd *and* preſerv'd *Fruit, uſeful is the* Pear-Tree *(and beſt the moſt barren) for its excellent colour'd* Timber, *(ſeldom or never* worm-eaten) *eſpecially for* Stools, Tables, Chairs, Cabinets, *and very many works of the* Joyner *and* Sculptor: *And ſo is likewiſe both the* Black-cherry *and the* Plum-Tree.

APHORISMS

ANIMADVERSION.

IF *ſome of the following* Diſcourſes *ſeem leſs conſtant, or (upon occaſion) repugnant to one another, they are to be conſider'd as relating to the ſeveral* guſts, *and guizes of* perſons *and* Countries, *and not to be looked upon as recommended* Secrets, *much leſs* impos'd, *farther then upon* Tryal *they may prove grateful to the* Publick, *and the different inclinations of thoſe who affect theſe* Drinks : *nor in reaſon ought any to decry what is propos'd for the* univerſal Benefit ; *ſince it coſts them nothing but their civility to ſo many obliging* Perſons. *If the Title of* Aphoriſms (*which indeed was intended but for the firſt Sheets of* Mr Beale, *though, by a miſtake of the* Printers, *continu'd over the reſt of the* Diſcourſes) *ſeem to point at ſomething more* dogmatical, *or arrogant* ; *let the equal* Reader *pleaſe to know, that there is nothing leſs intended by the* R. Society, *then* ſo *to pronounce concerning any their moſt accurate* Experiments ; Theſe *being but occaſional* Papers *enter'd into their* Regiſter, *and thrown into this form as* Repoſitories *more apt and at hand; and becauſe (as I ſaid) they do not pretend to fine, and elaborate* Methods, *but to the* Things *as they may be of uſe, and are in their kind conſiderable.*

J. E.

APHORISMS
CONCERNING
CIDER:

By Mr. *BEALE.*

1. HE that would treat exactly of *Cider* and *Perry* muſt lay his foundation ſo deep as to begin with the *Soyl*: For as no Culture or Graffs will exalt the *French Wines* to compare with the *Wines* of *Greece*, *Canaries*, and *Montefiaſco*; ſo neither will the *Cider* of *Bromyard* and *Ledbury* equal that of *Allenſmore*, *Ham-lacy*, and *Kings-Capell*, in the ſame ſmall County of *Hereford*.

2. Yet the choice of the *Graff* or *Fruit* hath ſo much of prevalency, that the *Red-ſtrake-Cider* will every where excel common *Cider*, as the *Grape* of *Frontignac*, *Canary*, or *Baccharach*, excels the common *French Grape*; at leaſt, till by time and traduction it degenerateth.

3. I cannot divine what *Soil* or what *Fruit* would yield the beſt *Cider*; or, how excellent *Cider* or *Perry* might be if all *Soils* in common and all *Fruit* were tried; but for *thirty years* I have tried all ſorts of *Cider* in *Hereford-ſhire*, and for three years I have tried the beſt *Cider* in *Somerſet-ſhire*; and for ſome years I have had the beſt *Cider* of *Kent* and *Eſſex* at my call; yet hitherto I have always found the *Cider* of *Hereford-ſhire* the beſt, and ſo adjudged by all good *Palates*.

4. I cannot undertake to particularize all kind of *Soil*, no more than to compute how many *ſyllables* may be drawn from the *Alphabet*; the number of Alphabetical *Elements* being better known then the *Ingredients* and *Particles* of *Soil*, as *Chalk*, *Clay*, *Gravel*, *Sand*, *Marle*, (the tenaciouſneſs, colour, and innumerable other qualities, ſhewing endleſs diverſities;) and the Fruit of *Crabs*, *Apples*, and *Pears*, being as various as of *Grapes*, *Figs*, and *Plums*.

5. Yet in groſs, this I note; That as *Bacchi amant colles*, and a light ground, ſo our beſt *Cider* comes from the hot *Rie-lands*: In fat *Wheat-land* it is more ſluggiſh; and in white, ſtiff *Clay-land* (as in *Woollhope* in *Hereford-ſhire*) the common *Cider* retains a thick whey-colour, and not good: Only ſuch as emergeth there

(by the diligence of ſome *Art* of the *Inhabitants*) is bright and clear, and ſo lively, that they are apt to challenge the beſt.

6. Some *Cider* mixeth kindly with *Water* in the *Cider-mill*, and will hold out a good ſmall *Wine*, and leſs inflaming, all the following *Summer*. Some *Cider* (as of *Longhope*, a kind of ſour *Woodland* Country of *Herefordſhire*) will not bear any mixture of *Water*, but ſoon decay, and turn more harſh and ſour: And thus we noted in *France*, ſome courſe *Wines* ſtuck like paint on the *Glaſs*, unwilling to incorporate with the Water: *Vin d' Aye*, and other delicate Wines, did ſpread themſelves more freely, as *gold* is more *ductile* then baſer *metals*.

7. Some would, for a fit, extol the *Cider* of *Pearmains*, ſome of *Pepins*; (and of *Pepins* I have found a congenial *Liquor*, leſs afflicting *ſplenetick* perſons, as in mine own experience I conceived:) And Sr *Henry Lingen* once extolled the *Cider* of *Eleots* (as richly bedewing the Glaſs like beſt *Canaries*;) and full Hogſheads of the *Stocking-Apple* have been tried amongſt us, but diſappointing our expectation, though perhaps by evil ordering: Yet Mr *Gritten* highly boaſted a Mixture of *Stocking-Apples* and *May-Pears*, tried (as I take it) by himſelf: After many years trial of thoſe and many other kinds, the *Redſtrake* carried the common fame, and from moſt of thoſe reduced admirers. The *Gennet-Moyl Cider* was indeed more acceptable to unskilful and tender *Palats*; and it will require *Cuſtom* and *Judgment* to underſtand the preferrency of the *Red-ſtrake*, whoſe mordicant ſweetneſs moſt agreeably gives the farewel, endearing the relliſh to all underſtanding *Palats*; which both obliges, whets, and ſharpens the *ſtomach* with its maſculine and *winy* vigour; and many thouſands extol it for exceeding the ordinary *French-Wine*: But grant it ſhould not be ſo ſtrong as *Wine*; let me ask how many ſober perſons abroad addict themſelves to meer *Wine*? Then compare *this* with diluted *Wine*, as uſually for temperate men, and then let the trial be made, whether the *Pepin-Cider* or *Red-ſtrake* will retain the *winy* vigour in greater proportion of *Water*. Add to this, That they commonly mingle *Water* in the *Preſs* with *Apples* (a good quantity) whiles they grinde the *Apple*; and the *Water* thus mixed, at that time, does ſo pleaſingly incorporate in the grinding, fermentation, and maturity of Veſſelling, that 'tis quite another and far more pleaſant thing then if ſo much or half ſo much *Water* were mingled in the *Cup* at the drinking time; as *Salt* on the *Trencher* will not give *Beef*, *Porke*, or *Neats-tongue*, half that ſame relliſh which duly *powder'd* and timely ſeaſon'd.

8. I did once prefer the *Gennet-moyl Cider*, but had only the *Ladies* on my ſide, as gentler for their ſugary *palats*, and for one or two ſober draughts; but I ſaw cauſe to recant, and to confeſs the *Red-ſtrake* to warm and whet the *Stomach*, either for *meat* or more *drink*.

9. The right *Cider-fruit* is far more *ſucculent*, and the *Liquor* more eaſily divides from the *pulpe* of the *Apple*, then in beſt *Table-fruit*, in which juice and the pulp ſeem friendly to diſſolve together on the tongues end.

10. The

10. The Liquor of beſt *Cider-fruit* in the *Apple*, in beſt ſeaſon of ripeneſs, is more brisk and ſmart than that which proves duller *Cider*: And generally the fierceſt *Pears*, and a kind of tamer *Crabs*, (and ſuch was the *Red-ſtrake* called in my memory) makes the more winy *Cider*.

11. *Palladius* denieth *Perry* to bear the heat of *Summer*; but there is a *Pear* in *Bosbury*, or thereabouts, which yields the *Liquor* richer the *ſecond* year then the *firſt*, and ſo by my experience very much amended the *third* year: They talk much higher; but that's beyond my account.

12. As *Cider* is for ſome time a ſluggard, ſo by like care it may be retained to keep the *Memorials* of many *Conſuls*; and theſe ſmoaky bottles are the *nappy Wine*. My Lord *Scudamore* ſeldome fails of three or four years; and he is nobly liberal to offer the Trial.

13. As *red Apples*, ſo *red Pears* (and amongſt them the red *Horſ-pear* next to the *Bosbury*) have held out beſt for the ſtomach and durance: But *Pears* do leſs gratifie the ſtomach then *Apples*.

14. The ſeaſon of *grinding* theſe *harſh Pears* is after a full maturity, not till they have dropt from the Tree, and there lain under the Tree, or in heaps, a *week*, or thereabouts.

15. And ſo of *Cider-Apples*, as of *Grapes*, they require full *maturity*, which is beſt known by their natural *fragrancy*; and then alſo, as ripe *Grapes* require a few mellowing days, ſo do all *Apples*, as about a week or little more, ſo they be not bruiſed, which ſoon turns to rottenneſs; and better ſound from the Tree then rotten from the heap.

16. That due maturity, and ſome reſt on the heap, does make the *liquor* taſte rather of *Apples* then *winy*, hath no more truth, (if the *Cider* be kept to fit age) then that very *old cheeſe* doth taſte of a *Poſſet*.

17. The harſher the *wild-fruit* is, the longer it muſt lye on heaps; for of the ſame fruit, ſuddainly ground, I have taſted good *Ver-juice*; being on heaps till neer *Chriſtmas*, all *good fellows* called it *Rheniſh-wine*.

18. The *Grinding* is ſomewhat conſiderable, rather too much then too little; here I ſaw a *Mill* in *Somerſetſhire* which grinds half a *Hogſhead* at a *griſt*, and ſo much the better ground for the frequent rolling.

19. Soon after *grinding* it ſhould be *preſt*, and immediately be put into the *Veſſel*, that it may ferment before the *ſpirits* be diſſipated; and then alſo in fermenting time the *Vent-hole* ſhould not be ſo wide as to allow a prodigal waſte of the *ſpirits*; and as ſoon as the ferment begins to allay, the *Veſſels* ſhould be *filled* of the *ſame*, and well ſtopped.

20. Of late 'tis much commended, that before it be *preſt* the *Liquor* and *Muſt* ſhould for four and twenty hours ferment together in a *Vat* for that purpoſe, covered, as *Ale* or *Beer* in the *Yeſt-vat*, and then tunned up. This is ſaid to enrich the liquor, and to give it ſomewhat of the *tincture* of ſome *red Apples*, as I have ſeen, and very well approved.

21. As *Sulphur* hath ſome uſe in *Wines*, ſo ſome do lay *Brimſtone* on a *ragge*, and by a *wire* let it down into the *Cider-veſſel* and there *fire* it; and when the Veſſel is full of the *ſmoak* the liquor ſpeedily poured in ferments the better. I cannot condemn this, for *Sulphur* is more kind to the *Lungs* than *Cider*, and the impurity will be diſcharged in the ferment.

22. *Apples* over-long hoarded before *grinding* will for a long time hold the liquor *thick*; and this liquor will be both pleaſant, and as I think, wholeſome; and we ſee ſome rich *Wines* of the later *Vintage*, and from *Greece*, retain a like craſſitude, and they are both *meat* and *drink*.

23. I have ſeen thick harſh *Cider* the ſecond *Summer* become clear and very richly pleaſant; but I never ſaw clear *acid Cider* recover.

24. *Wheat* or *Leven* is good and kind in *Cider*, as in *Beer*; *Juniper-berries* agree well and friendly for *Coughs*, weak Lungs, and the aged, but not at firſt for every Palate: The moſt infallible and undiſcerned improver, is *Muſtard* a *Pint* to each *Hogſhead*, bruiſed, as for ſauce, with a mixture of the ſame *Cider*, and applied as ſoon as the Veſſel is to be cloſed after fermenting.

25. *Bottleing* is the next *improver*, and proper for *Cider*; ſome put two or three *Raiſins* into every *Bottle*, which is to ſeek aid from the Vine. Here in *Somerſetſhire* I have ſeen as much as a *Wal-nut* of *Sugar*, not without cauſe, uſed for this Country *Cider*.

26. *Crabs* do not haſten the decay of *Perry*, but preſerve it, as *Salt* preſerves *fleſh*. But *Pears* and *Crabs* being of a thouſand kinds require more *Aphoriſmes*.

27. Neither *Wheat*, *Leven*, *Sulphur*, nor *Muſtard*, are uſed but by very few; and therefore are not neceſſary to make *Cider* laſt well, for two, three or four years.

28. The time of drawing *Cider* into *Bottles* is beſt in *March*, it being then clarified by the *Winter*, and free from the heat of the *Sun*.

29. In drawing, the *beſt* is neereſt the *heart* or middle of the Veſſel, as the *Yelk* in the *Egge*.

30. *Red-ſtraks* are of divers kinds, but the name is in *Herefordſhire* appropriated to one kind, which is fair and large, of a high *purple* colour, the ſmell *Aromatical*, the *Tree* a very *ſhrub*, ſome bearing a full burthen, and ſeldom or never failing till it decays, which is much ſooner then other *Apple-trees*. 'Tis lately ſpread all over *Herefordſhire*; and he that computes ſpeedy return, and true *Wine*, will think of no other *Cider-apple*, till a better be found.

31. I ſaid the *Red-ſtrake* is a ſmall *ſhrub*, 'tis of ſmall growth where the *Cider* proves richeſt, for ought we have yet ſeen in *Herefordſhire*, *viz.* in light quick land; and if the *land* be very dry, jejune and ſhallow, *that* and other *Cider-fruit* (eſpecially the *Gennet-moyle*) will ſuſpend the ſtore of fruit alternatively every other year; except ſome *Blaſts* or ſurpriſing *Froſts* in the *Spring* alter that *Method*; for two bad years ſeldom come together, very hardly three.

32. In

32. In good ſoil, I mean of *common field* (for fat land is not beſt for *Cider* fruit, but common *arable*) I have ſeen the Trees of good growth, almoſt equalling other *Cider-trees*, the *Apple* larger and ſeldom failing of a good *burthen*: thus in the *Vales* of *Wheat-lands*, in ſtrong *Glebe* or *Clay*, where the *Cider* is not ſo much extolled: but ſtill *Sack* is *Sack*, and *Canary* differs from *Claret*; ſo does the *Red-ſtrake-Cider* of the *Vale* excell any other *Cider* of the forcible ſoil.

33. Yet this diſtinction of *Soil* requires much *experience*, and great heed, if we inſiſt upon accurate directions; for as *Laurenberg* ſaith, *in pingui ſolo non ſeruntur omnia recte, neque in macro nihil.* And for *Gardens*, *Flowers* and *Orchards*, I would chuſe many times ſuch lands as do not pleaſe the *Husbandman*, either for *Wheat* or ſweet *Paſture*, which are his chief aims; and thus *Laurenberg*, *In Arida & tenui terra fælicius proveniunt Ruta, Allium, Petroſelinum, Crocus, Hyſſopus, Capparis, Lupini, Satureia, Thymus*; *Arbores quoque tenue & macilentum ſolum amant*; *itemque frutices plerique Hujuſmodi arbores, ſunt Pomi, Pyri, Ceraſus, Prunus, Perſica, Cotonea, Mori*; *Juglans, Coryli, Staphylodendrum, Meſpilus, Ornus, Caſtanea, &c. Frutices, ſcil. Vitis, Berberis, Geniſta, Juniperus, Oxyacantha, Periclymenum, Roſa, Ribeſium, Uva, Spina, Vaccinia, &c.*

34. But here alſo we muſt diſtinguiſh, that *Pears* will bear in a very *ſtony*, *hungry*, *gravelly-land*, ſuch as *Apples* will not bear in; and I have ſeen *Pears* bear in a tough binding hungry *Clay*, when *Apples* could not ſo well bear it (as the ſmooth rinds of the *Pear-trees*, and the *Moſſie* and *cankered rinds* of the *Apple-trees* did prove) the *root* of a *Pear-tree* being it ſeems more able to pierce a ſtony and ſtiff ground. And *Cherries*, *Mulberries* and *Plums*, can rejoyce in a richer ſoil, though by the ſmallneſs of the *Roots*, the ſhallower ſoil will ſuffice them. And *Quinces* require a deeper ground, and will bear with ſome degrees of hungry land, if they be ſupplied with a due meaſure of *ſucculency*, and neighbouring moiſture; and the other *ſhrubs*, according to the ſmalneſs of their *roots*, do generally bear a thinner land. I have ſeen a *ſoil* ſo much too rank for *Apples* and *Plums*, that all their fruits from year to year were always *worm-eaten*, till their lives were forfeited to the fire.

35. To take up from theſe *Curioſities*, the moſt uſeful reſult to our purpoſe; we have always found theſe *Orchards* to grow beſt, laſt longeſt, and bear moſt, which are frequently tilled for *Barley*, *Wheat* or other *Corn*, and kept (by *Culture* and ſeaſonable *reſt*) in due ſtrength to bear a full *crop*. And therefore, whereas the *Red-ſtrake* might otherwiſe without much injury be planted at *fifteen* or *twenty* foot *diſtance*, and the beſt *diſtance* for other *Cider-fruit* hath heretofore been reputed *thirty* or *two* and *thirty* foot; very good husbands do now allow in their largeſt *Incloſures* (as of 20 40 or 100 *Acres*) *fifty* or *ſixty* foot diſtance, that the Trees may not much hinder the *Plow*, and yet receive the benefit of *Compoſt*; and a *Horſe-teem* well governed will (without any damage of danger) *plow* cloſe to the *Trees*.

36. In

36. In ſuch ſoil as is here required, namely of good *Tillage*, an *Orchard* of *graffed Red-ſtrakes* will be of good growth, and good burthen, within *ten* or *twelve years*, and branch out with good ſtore to begin an encouragement at three years *graffing*; and (except the land be very unkind) will not yield to any decay within *ſixty* or *eighty years*, which is a mans age.

37. In ſome *ſheets* I rendered many Reaſons againſt Mr. *Auſtin* of *Oxford*, why we ſhould prefer a peculiar *Cider-fruit*, which in *Herefordſhire* are generally called *Muſts*; (both the *Apple* and the *Liquor*, and the *Pulpe* together in the contuſion) as from the Latine *Muſtum*. *White-muſts* of divers kindes, *Red-cheek'd* and *Red-ſtrak'd Muſts* of ſeveral kinds, *Green-muſts* called alſo *Green-fillet*, and *Blew-ſpotted:* Why, I ſay, we ſhould prefer them for *Cider*, before *Table-fruit*, as *Pepins*, *Pearmains*, *&c.* and I do ſtill inſiſt on them: 1. The Liquor of theſe *Cider-fruits* and of many kinds of auſtere fruit, which are no better than a ſort of full ſucculent *Crabs*, is more ſprightful briſk and *winy*. For Eſſay, I ſent up many *bottles* to *London*, that did me no diſcredit. Secondly, One buſhel of the *Cider-fruit* yields twice or thrice as much liquor. Thirdly, The *Tree* grows more in three or four years then the other in ten years, as I oft times remarked. Fourthly, The *Tree* bears far greater ſtore, and doth more generally eſcape *Blaſts* and *Froſts* of the *Spring:* I might add, that ſome of theſe, and eſpecially ſuch *Pears* as yield the beſt *Perry*, will beſt eſcape the hand of the *Thief*, and may be truſted in the open field.

38. By the *firſt*, *ſecond* and *fourth* of theſe Reaſons, I muſt exclude the *Gennet-Moyle* from a *right Cider-fruit*, it being dry and very apt to take *froſty blaſts*; yet it is no *Table-fruit*, but properly a baking fruit, as the ruddy colour from the *Oven* ſhews.

39. I ſaid that the right *Cider-fruit*, generally called *Muſts*, and deſerving the *Latine* name *Muſtum*, is of divers *kinds*; and I have need to note more expreſly that there is a *Red-ſtrak'd Muſt* (as I have often ſeen) but not generally known, that is quite differing from the famous *Red-ſtrake*, being much leſs, ſomewhat oblong and like ſome of the white *Muſts* in ſhape, and full of a very good *winy* liquor. I could willingly name the *perſons* and *place* where the diſtinct kinds are beſt known: it was firſt ſhewed me by *John Naſh* of *Aſhperton* in *Herefordſhire*; and for ſome years they did in ſome places diſtinguiſh a *Red-ſtrake*, as yielding a richer *Red-ſtrak'd-cider* of a more *fulvous* or *ruddy* colour; but this difference, as far as I could find, is but a choice of a better *inſolated* or ruddy fruit of the beſt kind, as taken from the *South-part* of the *Tree*, or from a *ſoil* that renders them richer. But my Lord *Scudamore*'s is ſafely of the beſt ſort; and M. *Whingate* of the *Grange* in *Dimoc*, and ſome of *King's-capel*, do beſt know theſe and other differences, *Straked*, *Muſt*, *right Red-ſtrake*, *Red-red-ſtrake*, *&c.*

40. The greeniſh *Muſt*, (formerly called in the *Language* of the *Country*, the *Green-fillet*) when the *Liquor* is of a kindly ripeneſs, retains a *greeneſs* equal to the *Rheniſh-glaſs*; which I note for them that conceive no *Cider* to be fit for uſe till it be of the *colour* of *old Sack*.

41. To

41. To direct a little more *caution*, for inquiry of the right *Red-ſtrake*, I ſhould give notice that ſome *Moneths* ago, M. *Philips* of *Mountague* in *Somerſetſhire*, ſhewed me a very fair large *Red-ſtrake Apple*, that by ſmell and ſight ſeemed to me and to another of *Herefordſhire* then with me to be the beſt *Red-ſtrake*; but when we did cut it and taſte it, we both denied it to be *right* (the other with much more confidence then my ſelf) but M. *Philips* making *Cider* of it, this week invited me to it, aſſuring that already it excels all *High-country-wines*. It had not ſuch plenty of juice as our *Red-ſtrakes* with us, and it had more of the pleaſantneſs of *Table-fruit*, which might be occaſioned, for ought I know, by the richer ſoil.

42. I may now ask why we ſhould talk of other *Cider-fruit* or *Perry*, if the beſt *Red-ſtrake* have all the aforeſaid pre-eminences of richer and more *winy* liquor, by half ſooner an *Orchard*, more conſtantly bearing, *&c.* An *Orchard* of *Red-ſtrakes* is commonly as full of fruit at *ten* years, as other *Cider-fruit* at *twenty* years, or as the *Pepin* and *Pearmain* at *thirty* or thereabout.

43. But all *ſoils* bear not *Apples*; therefore for *Perry*, which is the goodlier Tree for a *Grove*, to ſhelter a houſe and walks from *Summers heat* and *Winters cold winds*, and far more *laſting*; the pleaſanteſt *Cider-pear* of a known name amongſt them, is the *Horſe-pear*. And it is much argued, whether the *White-horſe-pear*, or the *Red-horſe-pear* be the better; where *both* are *beſt*, within two *Miles* they differ in judgement. The *Pear bears* almoſt its *weight* of ſprightful *winy liquor*; and I always preferred the *tawny* or *ruddy Horſe-pear*, and generally *that colour* in all *Pears* that are proper for *Perry*.

44. I rejected *Palladius* againſt the durableneſs of *Perry*; his words are, *Hyeme durat, ſed prima aceſcit æſtate, Tit.* 25. *Febr.* poſſibly ſo of common *Pears*, and in hotter Countries; but from good *Cellars* I have taſted a very briſk lively and *winy liquor* of theſe *Horſe-pears* during the end of *Summer*; And a *Bosbury-pear* I have named and often tried, which without *bottleing*, in common *Hogſheads* of vulgar and indifferent *Cellars*, proves as well pleaſanter as richer the *ſecond* year, and yet alſo better the *third* year. A very honeſt worthy and witty *Gentleman* of that neighbourhood would engage to me that in good *Cellars*, and in careful cuſtody, it paſſeth any account of decay, and may be *heightened* to a kind of *Aqua-vitæ*. I take the information worthy the *ſtile* of our modern *improvements*.

The *Pear-tree* grows in *common fields* and wild *ſtony ground*, to the largeneſs of bearing one, two, three or four *Hogſheads* each year.

45. This *Bosbury-tree*, and ſuch generally that bear the moſt laſting *Liquor* and *winy*, is of ſuch *unſufferable* taſte, that hungry *Swine* will not *ſmell* to it; or if *hunger* tempt them to taſte, at firſt cruſh they ſhake it out of their *mouths*; (I ſay not this of the *Horſe-pear*) and the Clowns call other *Pears*, of beſt Liquor, *Choak-pears*, and will offer money to ſuch as dare adventure to taſte them

them, for their *sport*; and their *mouths* will be more *stupified* then at the root of *Wake-robin*.

46. A row of *Crab-trees* will give an improvement to any kind of *Perry*; and since *Pears* and *Crabs* may be of as many *kinds* as there are *kernels*, or different kinds or mixtures of *soils*; in a general *Character* I would prefer the largest and fullest of all austere juices.

47. M. *Lill* of *Marole* (aged about 90 years) ever observed this Rule, to graff no *wild Pear-tree* till he saw the *fruit*; if it proved *large*, *juicy* and *brisk*, it failed not of good *Liquor*. But I see cause to say, that to *graff* a young tree with a riper *graff*, and *known excellency*, is a sure gain and hastens the return.

48. M. *Speke* (last *high Sheriff* of *Somersetshire*) shewed me in his *Park* some store of *Crab-trees*, of such huge *Bulk*, that in this fertile year he offered a *wager*, that they would yield one or *two Hogsheads* of *Liquor* each of them; yet were they small dry *Crabs*.

49. I have seen several sorts of *Crabs* (which are the natural *Apple*, or at worst but the *Wild-apple*) which are as large as many sorts of *Apples*, and the Liquor *winy*.

50. I have disclaimed the *Gust* of *Juniper-berries* in *Cider*; I tried it only *once* for *my self*, and drank it before *Christmas*: possibly in more time the rellish had been subdued or improved, as of *Hops* in *stale Beer*, and of *Rennet* in good *Parmasan*. Neither was the *Gust* to me otherwise unpleasant then as *Annise-seeds* in *Bread*, rather *strange* then *odious*; and by custom made grateful, and it did hasten the *clarification*, and increase the briskness to an endless *sparkling*: thus it indulgeth the *Lungs*, and nothing more *cheap*; where *Juniper* grows a *Girl* may speedily fill her lap with the *Berries*.

If *Barbados* Ginger be good, cheaper, and a more pleasant preserver of Beer, it must probably be most kind for *Cider*: For first, of all the improvers that I could name, bruised *Mustard* was the best; and this *Ginger* hath the same quick, mordicant vigor, in a more noble and more *Aromatique* fragrancy. Secondly, *Cider* (as I oft complain) is of a sluggish and somewhat windy nature; and for some *Moneths* the best of it is chain'd up with a cold *ligature*, as we phancie the *fire* to be lock'd up in a cold *Flint*. This will relieve the *prisoner*. And thirdly, will assist the *winy* vigor for them that would use it in stead of a sparkling *Wine*. Fourthly, 'Tis a good sign of much kindness, and great friendship: it will both enliven the *ferment* for speedier maturity, and also hold it out for more duration, both which offices it performs in Beer.

51. *Cider* being *windy* before maturity, some that must not wait the leisure of best *Season* do put sprigs of *Rose-mary* and *Bays* in the *Vessel*; the *first* good for the *head*, and not unpleasant; the *second*, an *Antidote* against *Infections*; but less pleasant till time hath incorporated the Tastes.

52. And why may we not make mention of all these *Mixtures*, as well as the *Ancients* of their *Vinum Marrubii*, *Vinum Abrotonites*, *Absynthites*,

Abſynthites, *Hyſſopites*, *Marathites*, *Thymites*, *Cydonites*, *Myrtites*, *Scillites*, *Violaceum*, *Sorbi*, *&c.*

53. And, for *mixtures*, I think we may challenge the *Ancients*, in naming the *Red-raſpy*; of which there is in this County a *Lady* that makes a *Bonella*, the beſt of *Summer drinks*. And more yet if we name the *Clove-july-flower*, or other *July-flowers*, a moſt gratefull *Cordial*, as it is infuſed by a *Lady* in *Staffordſhire*, of the Family of the *Devereux*'s, and by ſome *Ladies* of this Country.

54. I could alſo give ſome account of *Cherry-wine*, and Wine of *Plums*; their vaſt ſtore in ſome places, under a *peny* the *pound*, and their expedite growth makes it cheap enough, and as in the other, ſo in theſe, the large *Engliſh* or *Dutch* ſharp *Cherry*, and the full black, tawny *Plum*, as big as a *Walnut* (not the kind of *Heart-cherries*, nor the *Plum* which divides from the *ſtone*) make the *Wine*. Their cheapneſs ſhould recommend them to more general uſe at *Tables*, when *dryed* (an eaſie art) and then wholeſomer.

55. To return for *Red-ſtrake*; 'tis a good drink as ſoon as well *fermented*, or within a *moneth*, better after ſome *Froſts*, and when *clariſied*; rich *Wine*, when it takes the *colour* of *old Sack*. In a good *Cellar* it improves in *Hogſheads* the ſecond year; in *Bottles* and *ſandy Cellars* keeps the *Records* of late *revolutions* and old *Majoralties*. *Quære* the manner of laying them up in *ſand-houſes*.

56. I tried ſome *Bottles* all a *Summer* in the bottom of a *Fountain*; and I prefer that way where it may be had. And 'tis ſomewhat ſtrange if the Land be neither *dry* for a *ſand-houſe*, nor *fountainous* for this better expedient. When *Cider* is ſetl'd, and altogether, or almoſt *clarifi'd*, then to make it *ſpriteful* and *winy*, it ſhould be drawn into well *cork'd* and well bound *bottles*, and kept ſome time in *ſand* or water; the longer the better, if the kind be good. And *Cider* being preſerv'd to due *age*, *bottl'd* (and kept in cool places, *conſervatories*, and *refrigerating* ſprings) it does almoſt by time turn to *Aqua-vitæ*; the *Bottles* ſmoak at the opening, and it catches *flame* ſpeedily, and will burn like *ſpirit* of *Wine*, with a fiery taſte; and it is a laudable way of trying the vigour of *Cider* by its promptneſs to *burn*, and take *fire*, and from the quantity of *Aqua-vitæ* which it yields.

57. I muſt not preſcribe to other *Palates*, by aſſerting how good *Cider* may be made, or to compare it with *Wines*: But when the late *King* (of bleſſed memory) came to *Hereford* in his diſtreſs, and ſuch of the *Gentry* of *Worceſterſhire* as were brought thither as *Priſoners*; both *King*, *Nobility* and *Gentry*, did prefer it before the beſt *Wines* thoſe parts afforded; and to my knowledge that *Cider* had no kind of *Mixture*. Generally all the *Gentry* of *Herefordſhire* do abhor all mixtures.

Yet if any man have a deſire to try *concluſions*, and by an harmleſs *Art* to convert *Cider* into rich *Canary-wine*; let the *Cider* be of the former year, *Maſculine* and in full body, yet pleaſant, and well taſted of the *Apple*: into ſuch *Cider* put a *ſpoonful*, or *ſo*, of the *ſpirit* of *Clary*, it will make the *Liquor* ſo perfectly to reſemble the very beſt *Canary*, that few good and exercis'd *Palates* will be able to diſtinguiſh it.

Sir *PAUL NEIL's*

DISCOURSE OF CIDER.

My Lord,

IN obedience to the *Commands* of this *Honourable Society*, I have at length endeavoured to give this brief *Account* of that little which I know concerning the *Ordering* of *Cider*; and in *that* I ſhall propound to my ſelf *ſix* things.

Firſt, To ſhew that *Cider* made of the beſt *Eating-apples* muſt needs be *once* the beſt; (that is to ſay) the pleaſanteſt *Cider*.

Secondly, That hitherto the general opinion hath been otherwiſe, and that the reaſon of that miſtake was the not apprehending the true cauſe why the *Pepin-cider*, *&c.* did not retain its ſweetneſs, when the *Hard-apple-cider* did.

Thirdly, What is the true cauſe that *Pepin-cider*, uſed in the ordinary method, will not retain its ſweetneſs.

Fourthly, How to cure that *evil* in *Pepin-cider*.

Fiftly, A probable conjecture, how in ſome degree by the ſame *Method* to amend the *Hard-apple-cider*, and *French-wine*.

Sixthly, That what is here propounded cannot chuſe but be *wholſome*, and may be done to what degree every mans *Palate* ſhall wiſh.

Having now told your *Lordſhip*, what I will endeavour to do before I enter upon it, I muſt declare what I will not in the leaſt pretend to do.

1. I do not pretend to any thing concerning the *planting* and *graffing* of *Trees*, *&c.*

Nor what *Trees* will ſooneſt *bear* or *laſt* longeſt.

Nor what *ſorts* of *Trees* are the beſt *bearers*, and may with leaſt danger grow in *Common fields*.

Nor what *ſort* of *fruit* will yield the greateſt ſtore of *Cider*.

Nor what *Cider* will *keep* the longeſt, and be the ſtrongeſt, and wholeſomeſt to *drink* conſtantly with *meat*.

The

The only thing I ſhall endeavour, being to preſcribe a way to make a ſort of *Cider* pleaſant and quick of taſte, and yet wholeſome to *drink*, ſometimes, and in a moderate proportion: For, if this be an *Hereſie*, I muſt confeſs my ſelf guilty; that I prefer *Canary-wine*, *Verdea*, the pleaſanteſt *Wines* of *Greece*, and the *High-country-wines* before the *harſh Sherries*, *Vin de Hermitage*, and the *Italian* and *Portugal* rough *Wines*, or the beſt *Graves-wines*; not at all regarding that I am told, and do *believe*, that theſe *harſh Wines* are more comfortable to the *ſtomack*, and a *Surfeit* of them leſs *noxious*, when taken; nor to be taken but with drinking greater quantities then can with ſafety be taken of thoſe other pleaſant *Wines*: I ſatisfying my ſelf with this, that I like the *pleaſant Wines* beſt; which yet are ſo wholeſome that a man may drink a moderate quantity of them without prejudice.

Nor ſhall I at all concern my ſelf, whether this ſort of *Cider* I pretend to is ſo *vinous* a liquor; and conſequently will yield ſo much *ſpirit* upon *Diſtillation*, or ſo ſoon make the *Country-man* think himſelf a *Lord*, as the *Hard-apple-cider* will do: nor whether it will *laſt* ſo long; for it is no part of my *deſign* to perſwade the *World* to lay by the making of *Hard-apple-cider*; but rather in a degree to ſhew how to improve that in point of pleaſantneſs, and that by the making and rightly ordering of *Cider* of the beſt *Eating-apples*; as *Golden-pepins*, *Kentiſh-pepins*, *Pear-mains*, *&c.* there may be made a more pleaſant *liquor* for the time it will laſt, then can be produced from thoſe *Apples* which I call *Hard-apples*, that is to ſay, *Red-ſtrakes*, *Gennet-moyles*, the *Broomsbury-crab*, *&c.* which are ſo *harſh* that a *Hog* will hardly eat them.

Nor ſhall I at all meddle with the making of *Perry*, or of any mixed drink of the juyce of *Apples* and *Pears*; though poſſibly what I ſhall ſay for *Cider* may be aptly applied to *Perry* alſo.

For the *firſt* particular, I *aſſerted* that the beſt *Apples* would make the pleaſanteſt, which in my ſence is the beſt *Cider*; (and I account thoſe the beſt Apples, whoſe juyce is the pleaſanteſt at the time when firſt preſſed, before fermentation) I ſhall need (beſides the experience of the laſt *ten* years) only to ſay, that it is an undeniable thing in all *Wines*, that the pleaſanteſt *Grapes* make the richeſt and pleaſanteſt *Wines*; and that *Cider* is really but the *Wine* of *Apples*, and not only made by the ſame way of *Compreſſion*; but left to it ſelf hath the ſame way of *Fermentation*; and therefore muſt be liable to the ſame meaſures in the choice of the materials.

To my ſecond *Aſſertion*, that this truth was not formerly owned by reaſon that in *Herefordſhire*, and thoſe Countries where they abound both with *Pepins* and *hard-apples* of all ſorts, they made *Cider* of both ſorts, and uſed them alike; that is, that as ſoon as they *ground* and *preſſed* the *Apples* and *ſtrained* the *Liquor*, they put it into their *Veſſels* and there let it lye till it had wrought, and afterwards was ſetled again and *fined*; as not thinking it wholeſome to drink till it had thus (as they call it) *purg'd* it ſelf,

and this was the frequent uſe of moſt men in the more *Southern* and *Weſtern* parts of *England* alſo. Now when *Cider* is thus uſed, it is no wonder that when they came to broach it, they for the moſt part found their *Pepin-cider* not ſo pleaſant as their *Moyle* or *Red-ſtrake-cider*; but to them it ſeemed a wonder, becauſe they did not know the *reaſon* of it (which ſhall be my next work to make out) for till they knew the *reaſon* of this *effect*, they had no cauſe but to think it was the nature of the ſeveral *Apples* that produced it; and conſequently to prefer the *Hard-apple-cider*, and to uſe the other Apples (which were good to eat *raw*) for the *Table*: which was an uſe not leſs neceſſary, and for which the *hard-apples* were totally improper.

To my *third* Aſſertion, which is, that in *Herefordſhire* they knew not what was the true cauſe why their *Pepin-Cider* (for by that name I ſhall generally call all ſorts of *Cider* that is made of *Apples* good to eat raw) was not, as they uſed it, ſo good as the *Cider* made of *hard-apples* (for by that name, for brevities ſake, I ſhall call the *Cider* of *Moyle*, *Red-ſtrake*, and all other ſorts of *harſh Apples*, not fit to eat raw.) *Firſt*, I ſay, for all *liquors* that are *Vinous*, the cauſe that makes them ſometimes harder or leſs pleaſant to the taſte, then they were at the firſt preſſing, is the too much *fermenting*: If *Wine* or *Cider* by any *accidental* cauſe do *ferment* twice it will be harder then if it had *fermented* but once; and if it *ferment* thrice, it is harder and worſe then if it had *fermented* but twice: and ſo onward, the oftner it *ferments* and the longer it *ferments*, it ſtill grows the harder. This being laid as a *foundation*, before we proceed further we muſt firſt conſider what is the cauſe of *fermentation* in *Wine*, *Cider*, and all other *Vinous Liquors*. Which (in my poor opinion) is the groſs part of the *Liquor*, which ſcapes in the ſtraining of the *Cider* (for in making of *Wine*, I do not find that they uſe the curioſity of ſtraining) and which is generally known by the name of the *Lee* of that (*Wine* or) *Cider*. And this *Lee* I ſhall, according to its thickneſs of parts, diſtinguiſh into the *groſs Lee*, and the *flying Lee*.

Now, according to the old method of making and putting up of *Cider*, they took little care of putting up *only* the clear part of the *Cider* into their Veſſels or *Caſk*; but put them up thick and thin together, not at all regarding this *ſeparation*; for experimentally they found that how thick ſoever they put it up, yet after it had throughly wrought or *fermented* and was ſetled again, it would ſtill be clear; and perchance that which was put up the ſooneſt after it was preſſed and the thickeſt, would, when the *fermentation* was over, be the cleareſt, the briſkeſt, and keep the longeſt. This made them confidently believe that it was not only not inconvenient to put it up quickly after the *preſſing*, but in ſome degree neceſſary alſo to put it up ſoon after the *preſſing*, ſo that it might have ſo much of the *Lee* mixed with it, that it might certainly, ſoon, and ſtrongly put it into a *fermentation*, as the only means to make it *wholſome*, *clean* and *briſk*; and when it ei-

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ther did not (or that they had reaſon to doubt) that it would not work or *ferment* ſtrongly enough, they have uſed to put in *Muſtard* or ſome other thing of like nature to increaſe the *fermentation.*

Now that which in *Cider* of *Pepins* hath been a cauſe of greater *fermentation* then in *Cider* of *hard-apples*, being both uſed after the former method, is this, that the *Pepins* being a ſofter fruit are in the *Mill* bruiſed into ſmaller *particles* then the harder ſorts of *Apples*; and conſequently more of thoſe ſmall parts paſs the ſtrainer in the *Pepin-cider* then in the *Cider* of *hard-apples*, which cauſeth a ſtronger *fermentation*, and (according to my former *principle*) a greater loſs of the native ſweetneſs then in that of *Hard-apple-cider*; and not only ſo, but the *Lee* of the *Hard-apple-cider* being compounded of greater *particles* then the *Lee* of the *Pepin-cider*, every individual *particle* is in it ſelf of a greater weight then the particles of the Lee of the *Pepin-cider*; and conſequently leſs apt to riſe upon ſmall motions, which produceth this effect; that when the *fermentation* of the *Hard-apple-cider* is once over, unleſs the Veſſel be ſtirred, it ſeldom falls to a ſecond *fermentation*; but in *Pepin-cider* it is otherwiſe: For if the *groſs Lee* be ſtill remaining with the *Cider*, it needs not the motion of the Veſſel to cauſe a new *fermentation*, but every motion of the *Air* by a change of *weather* from dry to moiſt will cauſe a new *fermentation*, and conſequently make it work till it hath deſtroyed it ſelf by loſing it's native ſweetneſs. And this alone hath been the cauſe, why commonly when they *broach* their *Pepin-cider* they find it ſo unpleaſant, that generally the *Hard-apple-cider* is preferred before it, although at firſt it was not ſo pleaſant as the *Pepin-cider*. Yet after this miſchief hath prevailed over the *Pepin-cider*, it is no wonder to find the *Hard-apple-cider* remaining not onely the ſtronger, but even the more pleaſant taſted. This to me ſeems ſatisfactory for the diſcovery of the *cauſe*, why in *Herefordſhire* the *Hard-apple-cider* is preferred before the *Pepin-cider*. But perhaps it may by ſome be *objected*, that they have before the *ten years*, in which you pretend you found this to be the cauſe of ſpoiling the *Pepin-cider*, been in *Herefordſhire*, and taſted the beſt *Cider* that *Country* did afford; and yet it was not like the *Pepin-cider* they had before then taſted in other parts. To this I do *anſwer*, at preſent, briefly, that by ſome miſtake, or chance, the maker of this *Pepin-cider*, which proved good, had done that, or ſomewhat like that, which under the next *Aſſertion* I ſhall ſet down, as a *Method* to cure the inconveniences which happen to *Pepin-cider*, by the ſuffering it to *ferment* too often, or too ſtrongly; but till that be explained it would be improper to ſhew more fully what theſe particular *accidents* might poſſibly be, which (without the intention of thoſe perſons which made the *Cider*) cauſed it to prove much better then their expectation, or indeed better then any could afterwards make: they poſſibly aſſigning the goodneſs of that *Cider* to ſomewht that was not really the *cauſe* of that *effect*.

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To juſtifie my fourth *Aſſertion*, and ſhew a *Method* how to *cure* the incoveniency which happens to *Pepin-cider* by the over working, I muſt firſt take notice of ſome things which I have been often told concerning *Wine*, and which indeed gave me the light to know what was the *cauſe* which had made *Pepin-cider* that had wrought long, *hard* when it came to be *clear* again. The thing I mean, is, that in divers *parts*, and even in *France* they make *three ſorts* of *Wine* out of one and the ſame *Grapes*; that is, they firſt take the *juice* of the *Grapes* without any more preſſing then what comes from their own weight in the *Vat*, and the bruiſing they have in putting into Veſſel, which cauſeth the ripeſt of thoſe *Grapes* to break, and the *juice* without any preſſing at all makes the pleaſanteſt and moſt delicate *Wine:* And if the *Grapes* were *red*, then is this firſt *Wine* very *pale*. The ſecond ſort they preſs a little, which makes a *redder Wine*, but neither ſo pleaſant as the firſt, nor ſo harſh as the laſt, which is made by the utmoſt preſſing of the very *skins* of the *Grapes*, and is by much more harſh, and of deeper colour then either of the other two. Now I preſume the *cauſe* of this (at leaſt in part) to be, that in the firſt ſort of *Wine*, which hath little of the ſubſtance, beſide the very *juice* of the *Grape*, there is little *Lee*, and conſequently little *fermentation*; and becauſe it doth not work long, it loſeth but little of the original ſweetneſs it had: The ſecond ſort being a little more preſſed hath ſomewhat more of the ſubſtance of the *Grape* added to the *juice*; and therefore having more of that part which cauſeth *fermentation* put with it, *ferments* more ſtrongly, and is therefore, when it hath done working leſs pleaſant then the firſt ſort, which wrought leſs. And for the ſame reaſon the *third ſort* being moſt of all preſſed, hath moſt of the ſubſtance of the *Grape* mingled with the *Liquor*, and worketh the longeſt: but at the end of the working when it ſettles and is clear, it is much more harſh then either of the two firſt ſorts. The thought of this made me firſt apprehend that the *ſubſtance* of the *Apple* mingled with the *juice*, was the cauſe of *fermentation*, which is really nothing elſe but an endeavour of the *Liquor* to free it ſelf from thoſe *Heterogeneous* parts which are mingled with it: And where there is the greateſt proportion of thoſe *diſſimilar* parts mingled with the *Liquor*, the endeavour of *Nature* muſt be the ſtronger, and take up more time to perfect the *ſeparation:* which when finiſhed leaves all the *Liquor* clear, and the groſs parts ſetled to the bottom of the *Veſſel*; which we call the *Lee*. Nor did this apprehenſion deceive me; for when I began (according to the *Method* which I ſhall hereafter ſet down) to ſeparate a conſiderable part of the *Lee* from the *Cider* before it had *fermented*, I found it to retain a very great part of its original ſweetneſs, more then it would have done if the *Lee* had not been taken away before the *fermentation*; and this not once, but conſtantly for *ſeven years*.

Now the *Method* which I uſed, was this: When the *Cider* was firſt ſtrained, I put it into a great *Vat*, and there let it ſtand *twenty four hours* at leaſt (ſometimes more, if the *Apples* were more ripe

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then ordinary) and then at a *tap* before prepared in the *Veſſel* three or four *inches* from the bottom I drew it into *pails*, and from thence filled the *Hogſhead* (or leſſer *Veſſel*) and left the greateſt part of the *Lee* behind; and during this time that the *Cider* ſtood in the *Vat*, I kept it as cloſe covered with *hair-clothes* or *ſacks* as I could; that ſo too much of the *ſpirits* might not Evaporate.

Now poſſibly I might be aſked why I did not, ſince I kept it ſo cloſe in the *Vat*, put it at firſt into the *Veſſel*? To which I anſwer, that had I put it at firſt into the *Veſſel*, it would poſſibly (eſpecially if the *weather* had chanced to prove wet and warm) have begun to *ferment* before that time had been expired; and then there would have been no poſſibility to have ſeparated any part of the *groſs Lee*, before the *fermentation* had been wholly finiſhed; which keeping it only covered with theſe clothes was not in danger: For, though I kept it warm in ſome degree, yet ſome of the *ſpirits* had ſtill liberty to *evaporate*; which had it been in the *Hogſhead* with the *Bung* only open, they would not ſo freely have done; but in the firſt 24 *hours* it would have begun to *ferment*, and ſo my deſign had been fully loſt: For thoſe *ſpirits* if they had been too ſtrongly *reverberated* into the *Liquor*, would have cauſed a *fermentation* before I could have taken away any part of the *groſs Lee*. For the great *myſtery* of the whole thing lyes in this, to let ſo many of the *ſpirits* evaporate, that the *liquor* ſhall not *ferment* before the *groſs Lee* be taken away; and yet to keep *ſpirits* enough to cauſe a *fermentation* when you would have it. For if you put it up as ſoon as it is *ſtrained*, and do not let ſome of the *ſpirits* evaporate, and the *groſs Lee* by its weight only to be ſeparated without *fermentation*, it will *ferment* too much and loſe its ſweetneſs; and if none be left, it will not *ferment* at all; and then the *Cider* will be dead, flat and ſowre.

Then after it is put into the *Veſſel*, and the *Veſſel* fill'd all but a little (that is, about a *Gallon* or thereabout) I let it ſtand (the *Bung-hole* being left only covered with a *paper*, to keep out any duſt or filth that might fall in) for 24 *hours* more; in which time the *groſſeſt* part of the *Lee* being formerly left in the *Vat*, it will not *ferment*, but you may draw it off by a *Tap* ſome two or three inches from the bottom of the *Veſſel*, and in that ſecond *Veſſel* you may ſtop it up, and let it ſtand ſafely till it be fit to *Bottle*; and poſſibly that will be within a day or more: but of this time there is no certain meaſure to be given; there being ſo many things that will make it longer, or leſs while before it be fit to *bottle*. As for *Example*, If the *Apples* were *over-ripe* when you ſtamped them, or ground them in the *Mill*, it will be the longer before it will be clear enough to *Bottle*; or if the *weather* prove to be warmer or moiſter then ordinary: or that your *Apples* were of ſuch kinds, as with the ſame force in the ſtamping or grinding they are broken into ſmaller *particles* then other *Apples* that were of harder kinds.

Now, for knowing when it is fit to *Bottle*, I know no certain *Rule* that can be given, but to *broach* the *Veſſel* with a ſmall *Piercer*, and in that *hole* fit a *peg*, and now and then (two, or three times in a day)

day) draw a little, and ſee what fineneſs it is of; for when it is *bottled* it muſt not be perfectly *fine*; for if it be ſo, it will not *fret* in the *bottle*, which gives it a fine quickneſs, and will make it *mantle* and ſparkle in the *glaſs* when you pour it out: And if it be too thick when it is *bottled*, then, when it hath ſtood ſome time in the *bottles* it will *ferment* ſo much that it may poſſibly either drive out the *corks*, or break the *bottles*, or at leaſt be of that ſort (which ſome call *Potgun-drink*) that when you open the *bottles* it will fly about the houſe, and be ſo *windy* and *cutting* that it will be inconvenient to drink: For the right *temper* of *Bottle-Cider* is, that it *mantle* a little and *ſparkle* when it is put out into the *glaſs*; but if it *froth* and *fly* it was *bottled* too ſoon: Now the *temper* of the *Cider* is ſo nice, that it is very hard when you *bottle* it to foretell which of theſe two conditions it will have: but it is very eaſie within a few days after (that is to ſay, about a *week*, or ſo) to find its *temper* as to this point. For firſt, if it be *bottled* too ſoon; by this time it will begin to *ferment* in the *Bottles*, and in that caſe you muſt open the *Bottles*, and let them ſtand open two or three *minutes*, that that abundance of *ſpirits* may have *Vent*, which otherwiſe kept in would in a ſhort time make it of that *ſort* I called before *Pot-gun-drink*; but being let out, that danger will be avoided, and the *Cider* (without danger of breaking the *bottles*) will *keep* and *ferment*, but not too much. Now this is ſo eaſie a *remedy*, that I would adviſe all men rather to erre on the hand of *bottling* it too ſoon, then let it be too *fine* when they *bottle* it; for if ſo, it will not *fret* in the *bottle* at all; and, conſequently, want that *briskneſs* which is deſireable.

Yet even in this caſe there is a *Remedy*, but ſuch a one as I am always very careful to avoid, that ſo I may have nothing (how little ſoever) in the *Cider* but the *juice* of the *Apple*: But the *remedy* is, in caſe you be put to a neceſſity to uſe it, that you open every *bottle* after it hath been *bottled* about a week or ſo, and put into each *bottle* a little piece of *white Sugar*, about the bigneſs of a *Nutmeg*, and this will ſet it into a little *fermentation*, and give it that *briskneſs* which otherwiſe it would have wanted. But the other way being full as eaſie, and then nothing to be added but the juice of the *Apple* to be ſimply the ſubſtance of your *Cider*, I chuſe to prefer the errour of being in danger to *bottle* the *Cider* too ſoon, rather than too late: Nay ſometimes in the *bottling* of one and the ſame *Hogſhead* (or other *Veſſel*) of *Cider*, there may the firſt part of it be too *fine*; the ſecond part *well*; and the laſt not *fine* enough: and this happens when it is *broached* firſt *above* the *middle*, and then *below*; and then when it begins to run low, *tilted* or raiſed at the further end, and ſo all drawn out. But to avoid this inconvenience, I commonly ſet the *bottles* in the order they were filled, and ſo we need not open all to ſee the condition of the *Cider*; but trying one at each end, and one in the middle, will ſerve the turn: And to prevent the inconveniency, *broach* not at all above the *middle*, nor too *low*; and when you have drawn all that will run at the *Tap*, you may be

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ſecure it is ſo far of the ſame *temper* with the firſt *bottle*. And then *tilt* the *Veſſel*; but draw no more in three or four hours at the leaſt after, and ſet them by themſelves, that ſo, if you pleaſe, you may three or four days after pour them off into other *bottles*, and leave the *groſs* behind: And by this means though you have a leſs number of *bottles* of *Cider* then you had, yet this will continue good, and neither be apt to *fly*, nor have a *ſediment* in the *bottle*, which after the firſt *glaſs* is filled will render all the reſt of the *bottle* thick and muddy.

By all this which I have ſaid, I think it may be made out that thoſe perſons which I mentioned in the end of the laſt *Parragraph*, that ſometimes had *Pepin-cider* better then ordinary, and indeed then they could make again, were beholding to *chance* for it; either that their *Apples* were not ſo full ripe at that as at *other* times, and ſo not bruiſed into ſo ſmall parts; but the *fermentation* was ended in the *Veſſel*, and the *Lee* being then *groſs* ſetled before the *Cider* had *fermented* ſo long as to be hard.

Or elſe, by ſome *Accident* they had not put it ſo ſoon into the *Veſſel*, but that in part it was ſetled before they put it up, and the groſſeſt part of the *Lee* left out of the *Veſſel*.

Or elſe, the *Bung* being left *open* ſome part of the *ſpirits* evaporated; and that made the *fermentation* the weaker, and to laſt the leſs time.

Or elſe, they put it up in ſuch a *ſeaſon* that the *weather* continued *cold* and *froſty* till the *fermentation* was quite over; and then it having wrought the leſs time, and with the leſs violence, it remained more pleaſant and rich then otherwiſe it would have done.

Now for the *time* of making *Pepin-cider*, I chuſe to do it in the *beginning* of *November*, after the *Apples* had been gathered and laid about three weeks or more in the *loft*, that ſo the *Apples* might have had a little time to *ſweat* in the houſe before the *Cider* was made, but not too much; for if they be not full *ripe* before they be *gathered*, and not ſuffered to lye a while in the *heap*, the *Cider* will not be ſo pleaſant; and if they be *too ripe* when they are *gathered*, or lye too long in the *heap*, it will be very difficult to ſeparate the *Cider* from the *groſs Lee* before the *fermentation* begins: and in that caſe it will work ſo long that when it *fines* the *Cider* will be *hard*; for when the *Apples* are too *mellow*, they break into ſo ſmall *particles*, that it will be long before the *Lee* ſettles by its *weight* only: and then the *fermentation* may begin before it be *ſeparated*, and ſo deſtroy your intention of taking away the *groſs Lee*. And if the *Apples* be not *mellow* enough, the *Cider* will not be ſo pleaſant as it ought to be.

This being ſaid for the time of making the *Pepin-cider*, may (*mutatis mutandis*) ſerve for all other ſorts of *Summer-fruit*; as the *Kentiſh-codling*, *Marigolds*, *Gilly-flowers*, *Summer-pearmains*, *Summer-pepins*, *Holland-pepins*, *Golden-pepins*, and even *Winter-pearmains*. For though they muſt not be made at the ſame *time* of the *year*, yet they muſt be made at the *time* when each re-

ſpective *fruit* is in the ſame condition that I before directed that the *Winter-pepin* ſhould be. Nay, even in the making of that *Cider*, you are not tied to that time of the *year* to make your *Cider*; but as the condition of that particular *year* hath been, you may make your *Cider* one, two, three or four weeks later; but it will be very ſeldom that you ſhall need to begin to make *Kentiſh-pepin-cider* before the beginning of *November*, even in the moſt *Southern* parts of *England*.

The next thing I ſhall mention, is, the ordering of your *bottles* after they are *filled*; for in that conſiſts no ſmall part of cauſing your *Cider* to be in a juſt condition to *drink*: For, if it does *ferment* too much in the *bottle*, it will not be ſo convenient to *drink*, neither for the taſte, nor wholſomneſs; and if it *ferment* not at all, it will want that little *fret* which makes it *grateful* to moſt *Palates*. In order to this, you muſt obſerve, firſt, whether the *Cider* were *bottled* too early, or too late, or in the juſt time: If too early, and that it hath too much of the *flying Lee* in it, then you muſt keep it as cool as you can, that it may not work too much, and if ſo little that you doubt it will not work at all, or too little; you muſt by keeping it from the inconvenience of the external *air*, endeavour to haſten and increaſe the *fermentation*. And this I do, by ſetting it in *ſand* to cool, and by covering the *bottles* very well with *ſtraw*, when I would haſten or increaſe the *fermentation*.

And if I find the *Cider* to have been *bottled* in its juſt time, then I uſe *neither*, in ordinary weather; but content my ſelf that it ſtands in a cloſe and coole *Cellar*, either upon the *ground*, or upon *ſhelves*; ſaving in the time that I apprehend *froſt*, I cover it with *ſtraw*, which I take off as ſoon as the *weather* changeth; and conſequently about the time that the cold *Eaſt winds* ceaſe; which uſually, with us, is in the beginning of *April*; I ſet my *bottles* into *ſand* up to the necks. And by this means I have kept *Pepin-cider* without change till *September*, and might have kept it longer, if my ſtore had been greater: For by that time the *heats* were totally over, and conſequently, the *cauſe* of the *turn* of *Cider*.

Having now declared what is (according to my opinion) to be done to preſerve *Cider*, if not in it's original ſweetneſs, yet to let it loſe as little as is poſſible; I ſhall now fall upon my *fifth Aſſertion*, which is, that it is probable that ſomewhat like the former *Method* may in ſome degree mend *Hard-apple-cider*, *Perry*, or a drink made of the mixtures of *Apples* and *Pears*; and not impoſſible that ſomewhat of the ſame nature may do good to *French-wines* alſo.

Firſt, for *French-wines*, I think what I have in the beginning of this *diſcourſe* declared, as the hint which firſt put me upon the conceit, that the over-*fermenting* of *Cider* was the cauſe that it loſt of its original ſweetneſs (*viz.* the making of *three* ſorts of *Wine*, of *one* ſort of *Grapes*) is a teſtimony that the firſt ſort of *Wine* hath but little of the *groſs Lee*, and conſequently, *ferments* but little, nor loſeth but little of the original ſweetneſs; which

makes

makes it evident that the ſame thing will hold in *Wine* which doth in *Cider*; but the great difficulty is (if I be rightly informed) that they uſe to let the *Wine* begin to *ferment* in the *Vat* before they put it into the *Hogſheads* or other *Veſſels*; and thus they do, that the *Husks* and other *Filth* (which in the way they uſe, muſt neceſſarily be mingled with the *Wine*) may riſe in a *skum* at the top, and ſo be taken off: Now if they pleaſe, as ſoon as it is *preſſed*, to paſs the *Wine* through a *ſtrainer*, without expecting any ſuch *purgation*, and then uſe the ſame *Method* formerly preſcribed for *Cider*, I do not doubt but the groſs part of the *Lee* of *Wines*, being thus taken away, there will yet be enough left to give it a *fermentation* in the *bottles*, or ſecond *veſſel*, where it ſhall be left to ſtand, in caſe you have not *bottles* enough to put up all the *Wine* from which you have thus taken away the *groſs Lee*.

This *Wine* I know not whether it will laſt ſo long as the other uſed in the ordinary way, or not; but this I confidently believe, it will not be ſo harſh as the ſame would have been if it had been uſed in the ordinary way; and the pleaſantneſs of *Taſte*, which is not unwholſome, is the chief thing which I prefer both in *Wine* and *Cider*.

Now for the *Hard-apple-cider*, that it will receive an improvement by this way of ordering, hath been long my opinion; but this year an accident happened, which made it evident that I was not miſtaken in this conjecture. For there was a *Gentleman* of *Herefordſhire*, this laſt *Autumn*, that by accident had not provided *Caſk* enough for the *Cider* he had made; and having ſix or ſeven *Hogſheads* of *Cider* for which he had no *Caſk*, he ſent to *Worceſter*, *Gloceſter*, and even to *Briſtol*, to buy ſome, but all in vain; and when his *ſervants* returned the *Cider* that wanted *Caſk* had been ſome five days in the *Vat* uncovered; and the *Gentleman* being then diſpatching a *Barque* for *London* with *Cider*, and having neer hand a conveniency of getting *Glaſs-bottles*, reſolved to put ſome of it into *bottles*; did ſo, and filled ſeven or eight *Hampers* with the cleareſt of this *Cider* in the *Vat*, which had then never wrought, nor been put into any other *Veſſel* but the *Vat*; the *Barque* in which his *Cider* came had a tedious paſſage; that is, it was at leaſt ſeven weeks before it came to *London*, and in that time moſt of his *Cider* in *Caſk* had wrought ſo much that it was much harder then it would have been if it had according to the ordinary way lain ſtill in the *Country*, in the place where it was firſt made and put up, and conſequently, wrought but once.

But the other, which was in *Bottles*, and eſcaped the breaking, that is, by accident, had leſs of the *Lee* in it then other *bottles* had, or was not ſo hard ſtopped, but either before there was force enough from the *fermentation* to break the *bottle*, or that the *Cork* gave way a little, and ſo the *air* got out; or that the *bottles* were not originally well *corked*, was excellent good, beyond any *Cider* that I had taſted out of *Herefordſhire*; ſo that from this *Experience* I dare confidently ſay, that the uſing *Hard-apple-cider* after the former *Method*, preſcribed for *Pepin-cider*, will make it re-

tain a conſiderable part of ſweetneſs more then it can do after the *Method* uſed hitherto in *Herefordſhire*. Nor do I doubt but my *Method* will in a degree have the ſame effect in *Perry*, and the drink (as yet without a name that I do know of) which is made of the *juice* of *Wardens*, *Pears* and *Apples*, by ſeveral perſons, in ſeveral proportions; for the *Reaſon* being the ſame, I have no cauſe to doubt, but the *effect* will follow, as well in thoſe *Drinks*, as in *Cider* and *Wines*:

I am now come to my laſt *Aſſertion*; that *Cider* thus uſed cannot be *unwholſome*, but may be done to what degree any mans *Palate* deſires.

Firſt, it cannot be *unwholſome*, upon the ſame meaſure that *ſtummed Wine* is ſo; for that unwholſomeneſs is by leaving the cauſe of *fermentation* in the *Wine*, and not ſuffering it to produce its *effect* before the *Wine* be drank, and it *ferments* in mans body: and not only ſo, but ſets other *humours* in the body into *fermentation*; and this prejudiceth their *health* that drink ſuch *Wines*.

Now though *Cider* uſed in my *method* ſhould not *ferment* at all, till it come into the *bottle*, and then but a little; yet the cauſe of *fermentation* being in a great degree taken away, the reſt can do no conſiderable harm to thoſe which drink it, being in it ſelf but little, and having wrought in the *bottle* before men drink it; nor indeed do I think, nor ever find, that it did any inconvenience to my ſelf, or any perſon that drank it when it was thus uſed.

Secondly, becauſe the difference of mens *palates* and *conſtitutions* is very great; and that accordingly men like or diſlike drink that hath more or leſs of the *fret* in it; and that the conſequences in point of health are very different, in the *method* by me formerly preſcribed: it is in your *power* to give the *Cider* juſt as much *fret* as you pleaſe, and no more; and that by ſeverall ways: for either you may *bottle* it ſooner or later, as you pleaſe: or you may *bottle* it from two *Taps* in your *Veſſel*, and that from the *higher* Tap will have leſs *fret*, and the *lower* more: or you may *bottle* your *Cider* all from one *Tap*, and open ſome of the *bottles* about a week after for a few *minutes*, and then ſtop them up again; and that which was thus ſtop'd will have the leſs *fret*: or, if your *Cider* be *bottled* all from one *Tap*, if you will (even without opening the *bottles*) you may make ſome difference, though not ſo conſiderable as either of the former ways, by keeping part of the *bottles* warmer, for the firſt two *moneths*, then the reſt; for that which is kept warmeſt will have the moſt *fret*.

OBSER-

Sir *PAUL NEILE'S* ſecond Paper.

My Lord,

THe Paper which by the Command of the *Royal Society* I delivered in the laſt year, concerning the ordering of *Cider*, I have by this years experience found defective in one particular, of which I think fit by this to give you notice, which is thus: Whereas in the former *Paper* I mention, that after the *Pepin-cider* hath ſtood 24 hours in the *Vat*, it might be drawn off into pailes, and ſo put into the Veſſel; and that having ſtood a ſecond 24 hours in that Veſſel, it might be drawn into another Veſſel, in which it might ſtand till it were fit to *Bottle*; for the particulars of all which proceeding I refer to the former Paper; and ſhall now only mention, That this laſt year we were fain to draw it off into ſeveral Veſſels, not only as is there directed, *twice*, but moſt of our *Cider* five, and ſome *ſix* times; and not only ſo, but we were after all this fain to *precipitate* the *Lee* by ſome of thoſe ways mentioned by Dr *Willis* in the 7th *Chap.* of his Treatiſe *De fermentatione*. Now though this be more of trouble then the Method by me formerly mentioned; yet it doth not in the leaſt deſtroy that *Hypotheſis* which in the former Diſcourſe I laid down, (*viz.*) That it was the leaving too much of the *Lee* with the *Cider*, which upon the change of air, ſet it into a new *fermentation*, and conſequently made it loſe the ſweetneſs; for this change by the indiſpoſition of the *Lee* to ſettle this year more then others, hath not hindred the goodneſs of the *Cider*; but that when it was at laſt maſtered, and the *Cider* bottled in a fit temper, it was never more pleaſant and quick then this year: but I find that this year our *Cider* of Summer-Apples is already turned ſowre, athough it be now but the firſt of *January*; and the laſt year it kept very well till the beginning of *March*; which makes me fear that our *Pepin-cider* will not keep till this time twelve moneth, as our *Pepin-cider* of the laſt year doth till this day, and ſtill retains its original pleaſantneſs without the leaſt turn towards ſowreneſs.

And I am very confident, the difference of time and trouble, which this year we found in getting the *Cider* to *fine* and be in a condition to Bottle, was only the effect of a very bad and wet Summer, which made the Fruit not ripen kindly; and to make it yet worſe, we had juſt at the time when we made our *Cider*, this year, extream wet and windy weather, which (added to the unkindlineſs of the Fruit) was the whole cauſe of this alteration: And however my *Hypotheſis* as yet remains firm, for if by taking any part of the *Lee* from the *Cider* you can preſerve it in its original ſweetneſs, it is not at all material whether it be always to be done by twice drawing off from the *Lee*, or that it muſt ſometimes

Place this between fol. 40. *and* fol. 41. *after Sir* Paul Neile's *Diſcourſe of Cider.*

times be done with more trouble, and by oftener repeating the ſame Work, ſo that finally it be done, and by the ſame means, that is, by taking away part of the *Lee*, which otherwiſe would have cauſed too much *fermentation*; and conſequently have made the *Cider* loſe part of its original ſweetneſs.

My Lord, I ſhould not have preſumed to have given you and the *Society* the trouble of peruſing this Paper, but that, if poſſible, I would have you ſee, that what I think an errour in any opinion that I have held, I am willing to own; and yet I deſire not that you ſhould think my miſtake greater then in Reality it is.

OBSERVATIONS
Concerning the
Making and Preſerving
OF
CIDER:
BY
JOHN NEWBURGH Eſq;

IF the *Apples* are made up immediately from the *Tree*, they are obſerved to yield more, but not ſo good *Cider*, as if hoarded the ſpace of a month or ſix weeks; and if they contract any unpleaſing taſte (as ſometimes 'tis confeſs'd they do) it may be imputed to the Room they lye in, which, if it hath any thing in it either of too ſweet or unſavoury ſmell, the *Apples* (as things moſt ſuſceptible of impreſſion) will be eaſily tainted thereby.

Firſt, therefore, 'Tis obſerved by prudent *Fruiterers* to lay their *Apples* upon clean mere made *Reeds*, till they grind them for *Cider*, or otherwiſe make uſe of them: And if, notwithſtanding this caution, they contract any rottenneſs before they come to the *Cider-preſs*, the dammage will not be great, if care be had ere the *Apples* be grownd to pick out the finowed and the black-rotten; the reſt, though ſomewhat of putrefaction hath put them into a periſhing condition, will not render the *Cider* ill conditioned, either in reſpect of taſte or duration.

Secondly, If the *Apples* be abortive, having been (as it uſually happens) ſhaken down before the time by a violent wind, it is obſerved to be ſo indiſpenſably neceſſary that they lye together in *hoard*, at leaſt till the uſual time of their maturity, that the *Cider* otherwiſe is ſeldome or never found worth the drinking.

Thirdly, It matters not much whether the *Cider* be forc'd to purge it ſelf by working downward in the Barrel, or upwards at the uſual vent, ſo there be matter ſufficient left, on the top for a thick

thick *skin* or *film*, which will ſometimes be drawn over it, as well when it works after the vulgar manner, as when 'tis preſently ſtop'd up, with ſpace left for fermentation, to be performed altogether within the Veſſel.

Fourthly, No Liquor is obſerved to be more eaſily affected with the ſavour of the Veſſel then *Cider*; therefore ſingular care is taken by diſcreet *Cider-Maſters*, that the Veſſel be not only taſteleſs, but alſo well prepared for the *Liquor* they intend to fill it with. If it be a new *Cask*, they prepare it by ſcalding it with *Water*, wherein a good quantity of *Apple-pomice* hath been boyled: If a tainted *Cask*, they have divers ways of cleanſing it: Some boyl an ounce of *Pepper* in ſo much Water as will fill an Hogſhead, which they let ſtand in a Veſſel of that capacity two or three days; then waſh it with a convenient quantity of *freſh water*, ſcalding hot, which (they ſay) is an undoubted cure for the moſt dangerouſly infected Veſſel.

Fifthly, Others have a more eaſie, and perhaps leſs effectual remedy. They take two or three ſtones of *quick lime*, which with ſix or ſeven Gallons of *Water* they ſet on work in the *Hogſheads*, being cloſe ſtop'd, and tumbling it up and down till the commotion ceaſe, it doth the feat. Of Veſſels that have been formerly uſed, next to that which hath been already acquainted with *Cider*, a *White-wine* or *Vinegar Cask* is eſteemed the beſt; *Claret* or *Sack* not ſo good. A Barrel to which ſmall Beer hath been tennant ſuits better with *Cider* then a ſtrong Beer Veſſel.

Half a peck of un-ground *Wheat* put to *Cider* that is harſh and eager will renew its fermentation, and render it more mild and gentle: Sometimes it happens, without the uſe of any ſuch means, to change with the *Seaſon*, and becomes of ſharp and ſour, unexpectedly benign and pleaſant.

Sixthly, Two or three *eggs* put into an *Hogſhead* of *Cider* that is become ſharp, and near of kin to *Vinegar*, ſometimes rarely leneſies and gentilizes it.

One pound of *broad figgs* ſlit is ſufficient to dulcifie an *Hogſhead* of ſuch *Cider*. A little quantity of *Muſtard* will clear an *Hogſhead* of muddy *Cider*. The ſame virtue is aſcribed to two or three rotten *Apples* put into it.

The latter running of the *Cider*, bottled immediately from the wring, is by ſome eſteemed for a pure, clear, ſmall, well-reliſh'd Liquor; but ſo much undervalued by them who deſire ſtrong drinks more then wholeſom, that they will not ſuffer it to incorporate with the firſt running.

Seventhly, *Cider* is found to *ferment* much better in mild and moiſt then in cold and dry weather; every ones experience hath taught him ſo much in the late froſty ſeaſon; if it had not wrought before, it was in vain to expect its working or clearing then, unleſs by ſome of the artificial means præ-mentioned, which alſo could not be made uſe of in a more unſeaſonable time.

The beſt *Cider*-fruit with us in this part of *Dorſet-ſhire* (lying neer to *Bridport*) next to *Pepin* and *Pearmain*, is a *bitter-ſweet*, or,

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as we vulgarly call them *bitter ſcale*, of which for the firſt years *Cider* very good is made unboyld, for two years keeping; being boyled about an *Hogſhead* to half, it's exceedingly ſtrong, but not ſo pleaſant.

Eighthly, We have few *Apples*, beſides this, that yield good *Cider* alone; the next to it is a *Deans Apple*; and the *Pleaſantine* I think may be mentioned in the third place; neither of which need the addition of other *Apples* to ſet off the relliſh, as do the reſt of our choiceſt fruits; *Pepins*, *Pearmains* and *Gilly-flowers* commixt are ſaid to make the beſt *Cider* in the world. In *Jerſey* 'tis a general obſervation, that the more of *red* any *Apple* hath in his *rind*, the more appropriate to this uſe; pale-fac'd *Apples* they exclude as much may be from their *Cider Vat*. With us 'tis an obſervation, that no ſweet *Apple* that hath a tough *rind* is bad for *Ciders*.

Muſtard made with *ſack* preſerves boiled *Cider*, and ſpirits it egregiouſly: If you boil *Cider* eſpecial care muſt be had to put it into the furnace immediately from the wring; otherwiſe, if it be let ſtand in *Vats*, or veſſels, two or three days after the preſſure, the beſt and moſt *ſpirituous* part will aſcend and fly away in the *vapours* when fire is put under it; and the longer your boiling continues, the leſs of goodneſs, or vertue, will be left remaining in the *Cider*.

1. One of mine *Acquaintance*, when a *Child*, hoarding *Apples* in a box where *Roſe-cakes*, and other ſweet wares were, their Companions found them of ſo unſavory taſte, and of ſo rank a relliſh derived from that perfumed gear which lay too neer, that even a childiſh *palate* (that ſeldom diſlikes any thing that looks like an *Apple*) could not diſpenſe with it.

2. A *Friend* of mine having made proviſion [of *Apples* for *Cider*, whereof ſo great a part of them were found *rotten* when the time of grinding them came, that they did as 'twere waſh the room with their juice, through which they were carried to the wring, had *Cider* from them not only paſſable, but exceeding good; but not without previous uſe of the prementioned caution; I am alſo aſſured by a *Neighbour* of mine, that a *Brother* of his, who is a great *Cider Merchant* in *Devonſhire*, is by frequent experience ſo well ſatisfied with the harmleſsneſs of rotten *Apples*, that he makes no ſcruple of exchanging with any one that comes to his *Cider-preſs*, a Buſhel of *ſound-apples* for the ſame meaſure of the *other*. Herein I ſuppoſe (if in other reſpects they are not prejudicial) he may be a gainer by the neer *compreſſion* of the tainted *Fruit*; which, as we ſpeak in our Country Phraſe, will go neerer together then the other: His advantage may be the greater, if the conceit which goes currant with them, be not a bottomleſs fancy; that a convenient quantity of rotten *Apples* mixt with the ſound is greatly aſſiſtant to the work of *fermentation*, and notably helps to clarifie the *Cider*.

3. A *Neighbour* told me, that making a quantity of *Cider* with *wind-falls*, which he let ripen in the *hoard*, neer a moneth interceding the time of their decuſſion, and that which *nature* intended

ded for their maturity; his *Cider* proved very good, when all his *Neighbours* (who made up their untimely fruit) as ſoon as it fell, had a crude, auſtere undigeſted *liquor*, not worth the name of *Cider*.

4. The thick skin, or leathern-coat, the *Cider* oftentimes contracts as well after it hath purged it ſelf after the uſual manner, as otherwiſe, is the ſureſt preſervative of its ſpirits, and the beſt ſecurity againſt other inconveniences incident to this and other like vinous liquors, of which the *Devonſhire Cider Merchants* are ſo ſenſible, that beſides the care they take, that matters be not wanting for the *Contexture* of this upper *garment* by ſtopping up the veſſel as ſoon as they have filled it (*with* the allowance of a Gallon or two upon the ſcore of *fermentation*) they caſt in *Wheaten-bran*, or duſt, to thicken the coat, and render it more certainly air proof. And I think you will believe their care herein not impertinent, If you can believe a ſtory which I have to tell you of its wondrous efficacy: A neer *Neighbour* of mine aſſures me, that his *Wife* having this year filled a barrel with *Mead*, which being ſomwhat ſtrong wrought ſomwhat boiſterouſly in the veſſel, that the good-woman caſting her eye that way accidentally, found it leaking at every chink, which aſcribing to the ſtrength of the *liquor*, ſhe thought immediately by giving it *vent* to ſave both the *liquor* and the *veſſel*; but in vain, both the ſtopples being pulled out the leakage ſtill continued, and the veſſel not at all relieved: till caſually, at length putting in her finger at the top, ſhe brake the prementioned *film*; which done, a good part of the *Mead* immediately flying out, left the reſidue in peace, and the leakage ceaſed. It may ſeem incredible that ſo thin a *skin* ſhould be more coercive to a mutinous *liquor* then a *Barrel* with *Oaken* ribs, and ſtubborn *hoops*. But I am ſo well aſſured of the veritablneſs of my *Neighbours* relation, that I dare not queſtion it. The reaſon of it let wiſe men determine.

5. A *Friend*, and *Neighbour* of mine, herewith cured a veſſel of ſo extream ill ſavour as it was thought it would little leſs then *poyſon* any *liquor* that was put into it.

6. A *Neighbour* of my acquaintance aſſured me, upon his credit, that coming into a Parſonage houſe in *Devonſhire*, where he found eleven *Hogſheads* of *Cider*, being unwilling to ſell what he ne're bought, he was three years in ſpending that ſtore which the former *Incumbent* had laid in for him: and it greatly amazed him (as well it might, if he remembred the old Proverb, *He mends as ſowre Ale in Summer*) to find the ſame *Cider* which in *Winter* was almoſt as ſharpe as *Vinegar*, in the Summer become *potable*, and good natured *liquor*.

7. In *Devonſhire*, where their wrings are ſo hugely great that an *Hogſhead* or two runs out commonly before the *Apples* ſuffer any conſiderable preſſure, they value this much what before the other, after the rate which we ſet upon *life-honey* (that which after the ſame manner drops ſweetly out of the *Comb*:) above that which renders not it ſelf without *compreſſion*. In *Jerſey* they value

value it at a *crown* upon an *Hogſhead* dearer then the other. (This I take from the relation of one of my *Neighbours* which ſometimes lived in that *Iſland*, which (for *Apples*, and *Cider*) is one of the moſt famous of all belonging to his *Majeſties* Dominions) yet even upon this, and their choiceſt *Ciders*, they commonly beſtow a pail of *water* to every *Hogſhead*, being ſo far (it ſeems) of *Pindars* mind, that they fear not any prejudice to their moſt excellent *liquors* by a daſh of that moſt excellent *Element*. Inſomuch that it goes for a common ſaying among them, that if any *Cider* can be found in their *Iſland* which can be prov'd to have no mixture of *water*, 'tis clearly forfeited. It ſeems they are ſtrongly conceited that this addition of the moſt uſeful *Element* doth greatly meliorate their *Cider*, both in reſpect of *colour*, *taſte*, and *clarity*.

8. About ſeven years ſince I gave my ſelf the experience of bitter *ſcale-cider*, both crude, and boiled; I call'd them both to an account at *twelve moneths* end: I then found the crude *Cider* ſeemingly as good, if not better then the boiled: But having ſtop'd up the *boiled*, I took it to task again about *ten moneths* after; at which time I found it ſo exceſſively ſtrong, that five perſons would ſcarcely venture upon an ordinary glaſsfull of it. My *Friends* would hardly believe but I had *heightened* it with ſome of my *ſpirits:* the truth is, I do not remember that I ever drunk any *liquor*, on this ſide *ſpirits*, ſo highly ſtrong and ſpirituous: But wanting pleaſantneſs anſwerable to its ſtrength, I was not very fond of my *experiment*.

9. A *Neighbour* having a good provent of *Purelings* (an *Apple* of choice account with us) making up a good part of them to *Cider*, expected rare *liquor*; but it proved very mean and pitiful *Cider*, as generally we find that to be which is made without mixture.

10. My *Diſtillations* ſufficiently inſtruct me, that the ſame *liquor* which (after *fermentation* hath paſt upon it) yields a plentiful quantity of *ſpirit*, drawn off unfermented yields nothing at all of *ſpirit*. And upon the ſame, it is undoubtedly certain, that *Cider* boiled immediately from the wring hath his ſpirits compreſt, and drawn into a narrow compaſs, which are for the moſt part waſted and evaporated by late unſeaſonable boiling.

CONCERNING

CIDER,

By Doctor *SMITH.*

THE beſt time to *grind* the *Apples* is immediately from the *Tree*, ſo ſoon as they are throughly ripe: for, ſo they will yield the greater quantity of *Liquor*, the *Cider* will drink the better, and laſt longer then if the *Apples* were hoarded: For *Cider* made of hoarded *Apples* will always retain an unpleaſing taſte of the *Apples*, eſpecially if they contract any rottenneſs.

The *Cider* that is ground in a *Stone-caſe* is generally accuſed to taſte unpleaſantly of the *Rinds*, *Stems* and *Kernels* of the *Apples*; which it will not if ground in a *Caſe* of *Wood*, which doth not bruiſe them ſo much.

So ſoon as the *Cider* is made, put it into the *Veſſel* (leaving it about the ſpace of one *Gallon* empty) and preſently ſtop it up very cloſe: This way is obſerved to keep it longer, and to preſerve its *ſpirits* better then the uſual way of filling the *Veſſel* quite full, and keeping it open till it hath done *fermenting*.

Cider put into a new Veſſel will often taſte of the *Wood*, if it be pierced early; but the ſame ſtopped up again, and reſerved till the latter end of the year, will free it ſelf of that taſte.

If the *Cider* be ſharp and thick it will recover it ſelf again: But if ſharp and clear, it will not.

About *March* (or when the Cider begins to ſparkle in the glaſs) before it be too fine, is the beſt time to bottle it.

Cider will be much longer in clearing in a mild and moiſt, then in a cold and dry *Winter*.

To every *Hogſhead* of *Cider*, deſigned for two years keeping, it is requiſite to add (about *March*, the firſt year) a quart of *Wheat* unground.

The beſt *Fruit* (with us in *Gloceſterſhire*) for the firſt years *Cider*, are the *Red-ſtrake*; the White and Red *Muſt-apple*, the ſweet and ſoure *Pepin*, and the *Harvey-apple*.

Pearmains alone make but a ſmall liquor, and hardly clearing of it ſelf; but, mixed either with ſweet or ſoure *Pepins*, it becomes very brisk and clear.

Muſt-apple-cider (though the firſt made) is always the laſt ripe; by reaſon that moſt of the *pulp* of the *Apple* paſſeth the *ſtrainer* in preſſing, and makes it exceeding thick.

The *Cider* of the *Bromsbury-Crab*, and *Fox-whelp*, is not fit for drinking, till the *ſecond year*, but then very good.

The *Cider* of the *Bromsbury-crab* yields a far greater proportion of *ſpirits*, in the diſtillation, then any of the others.

Crabs and *Pears* mixed make a very pleaſing Liquor, and much ſooner ripe then *Pears* alone.

OF

CIDER.

By Capt. *TAYLOR.*

Herefordſhire affords ſeveral ſorts of *Cider-apples*, as the two ſorts of *Red-ſtrakes*, the *Gennet-moyle*, the *Summer-violet* or *Fillet*, and the *Winter-fillet*; with many other ſorts which are uſed only to make *Cider*. Of which ſome uſe each ſort *ſimply*; and others *mix* many ſorts together. This *County* is very well ſtored with other ſorts of *Apples*; as *Pepins*, *Pear-mains*, *&c.* of which there is much *Cider* made, but not to be compared to the *Cider* drawn from the *Cider-apples*; among which the *Red-ſtrakes* bear the Bell; a *Fruit* in it ſelf ſcarce *edible*; yet the *juice* being preſſed out is immediately pleaſant in taſte, without any thing of that *reſtringency* which it had when incorporated with the *meat*, or *fleſh* of the *Apple*. It is many times *three moneths* before it comes to its *clearneſs*, and *ſix moneths* before it comes to a ripeneſs fit for *drinking*; yet I have taſted of it *three years old*, very pleaſant, though dangerouſly ſtrong. The *colour* of it, when *fine*, is of a ſparkling *yellow*, like *Canary*, of a good full body, and *oyly*: The *taſte*, like the *Flavour* or *perfume* of excellent *Peaches*, very grateful to the *Palate* and *Stomach*.

Gennet-moyles make a *Cider* of a ſmaller body then the former, yet very pleaſant, and will laſt a *year*. It is a good eating pleaſant ſharp fruit, when ripe, and the beſt *Tart-apple* (as the *Red-ſtrake* alſo) before its ripeneſs. The Tree grows with certain knotty *extuberancies* upon the *branches* and *boughs*; below which *knot* we cut off boughs the thickneſs of a mans *wriſt*, and place the knot in the ground, which makes the *root*; and this is done to raiſe this *fruit*; but very rarely by *graffing*.

Of *Fillets* of both ſorts (*viz.* Summer and Winter) I have made *Cider* of that proportionate taſte and ſtrength, that I have deceived ſeveral experienced *Palates*, with whom (ſimply) it hath paſſed for *White-wine*; and *daſhing* it with *Red-wine*, it hath paſſed for *Claret*; and mingled with the *Syrupe* of *Raſp'yes* it makes an excellent *womans wine*: The fruit is not ſo good as the *Gennet-moyle* to eat: The *Winter-fillet* makes a *laſting Cider*, and the

Summer-fillet an *early Cider*, but both very ſtrong; and the *Apples* mixt together make a good *Cider*.

Theſe *Apples* yield a *liquor* more grateful to my *Palate* (and ſo eſteemed of in *Herefordſhire* by the greater *Cideriſts*) then any made of *Pepins* and *Pearmains*, of which ſorts we have very good in that *Country*; and thoſe alſo both *Summer* and *Winter* of both ſorts, and of which I have drank the *Cider*; but prefer the other.

Grounds ſeparated only with a *Hedge* and *Ditch*, by reaſon of the difference of *Soils* have given a great alteration to the *Cider*, notwithſtanding the Trees have been graffed with equal care, the ſame *Graffs*, and laſtly, the ſame care taken in the making of the *Cider*. This as to the *Red-ſtrake*; I have not obſerved the ſame *niceneſs* in any other *fruit*; for *Gennet-moyles* and *Fillets* thrive very well over all *Herefordſhire*. The *Red-ſtrake* delights moſt in a fat ſoil: *Hamlacy* is a rich intermixt ſoil of *Red-fat-clay* and *Sand*; and *Kings-capel* a low hot ſandy ground, both well defended from noxious *Winds*, and both very famous for the *Red-ſtrake-cider*.

There is a *Pear* in *Hereford* and *Worceſterſhires*, which is called *Bareland-pear*, which makes a very good *Cider*. I call it *Cider* (and not *Perry*) becauſe it hath all the *properties* of *Cider*. I have drank of it from half a year old to two years old. It keeps it ſelf without *Roping* (to which *Perry* is generally inclined) and from its taſte: M. *Beal*, in his little *Treatiſe* called the *Herefordſhire-Orchard*, calls it deſervingly a *Maſculine Drink*; becauſe in taſte not like the ſweet *luſcious feminine* juice of *Pears*. This *Tree* thrives very well in barren ground, and is a fruit (with the *Red-ſtrake*) of which *Swine* will not eat; therefore fitteſt to be planted in Hedge-rows.

Red-ſtrakes and other *Cider-apples* when *ripe* (which you may know partly by the blackneſs of the *Kernels*, and partly by the *colour* and *ſmell* of the fruit) ought to be gathered in *Baskets* or *Bags*, preſerved from bruiſing, and laid up in heaps in the *Orchard* to *ſweat*; covered every night from the *dew*: Or elſe, in a *Barn-floor* (or the like) with ſome *Wheat* or *Rye-ſtraw* under them, being kept ſo long till you find, by their *mellowing*, they are fit for the *Mill*.

They that grind, or bruiſe their *Apples* preſently upon their *gathering*, receive ſo much *liquor* from them, that between *twenty* or *twenty two Buſhels* will make a *Hogſhead* of *Cider*: but this *Cider* will neither *keep* ſo well, nor *drink* with ſuch a *fragrancy* as is deſired and endeavoured.

They that keep them a *moneth* or *ſix weeks* hoarded, allow about *thirty buſhels* to the making of a *Hogſhead*; but this hath alſo an inconvenience; in that the *Cider* becomes not *fine*, or fit for drinking, ſo conveniently as a *mean* betwixt theſe two will afford.

Keep them then about a *fort-night* in a *hoard*, and order them to be of ſuch a *caſt* by this *Mellowing*, that about *twen-*

ty

ty five Buſhels may make a *Hogſhead*, after which mellowing proceed thus.

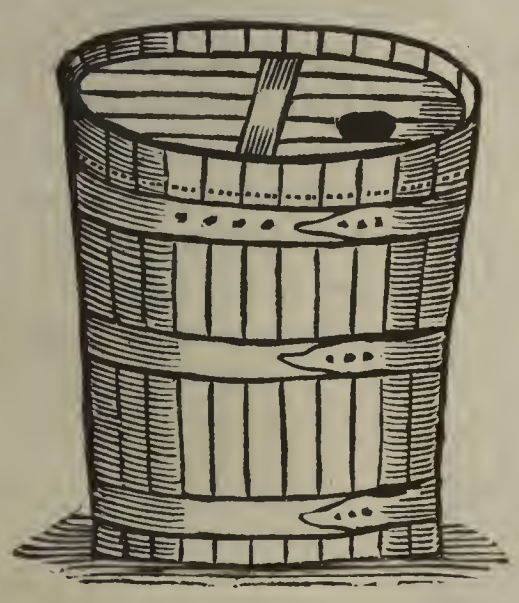
1. *Pick* and *clear* your *Apples* from their *ſtalks*, *leaves*, *moazineſs*, or any thing that tends toward *rottenneſs* or decay.

2. Lay them before the *Stone* in the *Cider-mill*, or elſe beat them ſmall with *Beaters* (ſuch as *Paviers* uſe to fix their pitching) in deep *troughs* of *Wood* or *Stone*, till they are fit for the *Preſs*.

3. Having laid clean *wheat-ſtraw* in the bottome of your *Preſs*, lay a heap of bruiſed *Apples* upon it, and ſo with ſmall handfuls or *wiſps* of *ſtraw*, which by twiſting takes along with it the ends of the *ſtraw* laid firſt in the bottome, proceed with the bruiſed *Apples*, and follow the heaps with your twiſted *ſtraw*, till it comes to the height of two foot, or two foot and a half; and ſo with ſome *Straw* drawn in by *twiſting*, and turned over the top of it (ſo that the bruiſed *Apples* are ſet as it were into a deep *Cheeſ-vat* of *ſtraw*, from which the Country people call it their *Cider-cheeſe*) let the *board* fall upon it *even* and *flat*, and ſo engage the force of your *skrew* or *Preſs* ſo long as any *Liquor* will run from it. Inſtead of this *Cheeſe* others uſe *baggs* of *Hair-cloth*.

4. Take this *Liquor* thus forced by the *Preſs*, and *ſtrain* it thorow a *ſtrainer* of *hair* into a *Vat*, from whence ſtraight (or that day) in *pails* carry it to the *Cellar*, tunning it up preſently in ſuch *Veſſels* as you intend to preſerve it in; for I cannot approve of a long *evaporation* of *ſpirits*, and then a diſturbance after it ſettles.

5. Let your *Veſſels* be very tight and clean wherein you put your *Cider* to ſettle: The beſt form is the *Stund* or *Stand*, which is ſet upon the leſſer end, from the top *tapering* downwards; as ſuppoſe the *head* to be *thirty* inches *diametre*, let then the *bottome* be but *eighteen* or *twenty* inches in *diametre*; let the *Tun-hole* or *Bung-hole* be on the one ſide *outwards*, toward the *top*. The reaſon of the goodneſs of this *form* of *Veſſel* is, becauſe *Cider* (as all ſtrong Liquors) after *fermentation* and working, contracts a *cream* or *skin* on the *top* of them, which in this form of *Veſſel* is as it ſinks *contracted*, and fortified by that contraction, and will draw freſh to the laſt drop; whereas in our ordinary *Veſſels*, when drawn out about the half or middle, this skin *dilates* and *breaks*, and without a quick draught decays and dies.



6. Reſerve a *Pottle* or *Gallon* of the *Liquor* to fill up the *Veſſel* to the brim of the *Bung-hole*, as oft as the *fermentation* and working leſſens the *Liquor*, till it hath done its work.

7. When it hath compleated its work, and that the *Veſſel* is filled up to the *bung-hole*, ſtop it up cloſe with well mix'd *clay*, and well tempered, with a handful of *Bay-ſalt* laid upon the top of the *clay*,

clay, to keep it moiſt, and renewed as oft as need ſhall require; for if the *clay* grows dry it gives *vent* to the *ſpirits* of the *Liquor*, by which it ſuffers decay.

I am againſt either the *boyling* of *Cider*, or the hanging of a bag of *Spices* in it, or the uſe of *Ginger* in drinking it; by which things people labour to correct that *windineſs* which they fancy to be in it: I think *Cider* not *windy*; thoſe that uſe to drink it are moſt free from *windineſs*; perhaps the *virtue of* it is ſuch, as that once ripened and mellowed, the drinking of it in ſuch ſtrength combates with that *wind* which lies inſenſibly latent in the body. The *Cider* made and ſold here in *London* in *Bottles* may have that *windineſs* with it as *Bottle-beer* hath, becauſe they were never ſuffered to *ferment*: But thoſe that have remarked the ſtrength and vigour of its *fermentation*, what weighty things it will caſt up from the bottome to the top, and with how many bubbles and bladders of *wind* it doth *work*, will believe that it clears it ſelf by that operation of all ſuch injurious *qualities*.

To preſerve *Cider* in *Bottles* I recommend unto you my own *Experience*, which is, Not to *bottle* it up before *fermentation*; for that incorporates the *windy quality*, which otherwiſe would be ejected by that operation: This violent ſuppreſſion of *fermentation* makes it *windy* in drinking, (though I confeſs *brisk* to the *taſte*, and *ſprightly* cutting to the *Palate:*) But after *fermentation*, the *Cider* reſting two, three, or four Months, draw it, and *bottle* it up, and ſo lay it in a *Repoſitory* of cool *ſpringing water*, two or three foot, or more, deep; this keeps the *ſpirits*, and the beſt of the *ſpirits* of it together: This makes it drink quick and lively; it comes into the *glaſs* not *pale* or troubled, but bright *yellow*, with a ſpeedy vaniſhing *nittineſs*, (as the *Vintners* call it) which *evaporates* with a *ſparkling* and *whizzing* noiſe; And than this I never taſted either *Wine* or *Cider* that pleaſed better: Inſomuch that a *Noble-man* taſting of a *Bottle* out of the *water* (himſelf a great *Cideriſt*) proteſted the excellency of it, and made with much greater charges, at his own dwelling, a *water Repoſitory* for his *Cider*, with good ſucceſs.

Kalendarium Hortenſe:

OR, THE

Gard'ners Almanac;

Directing what He is to do

MONETHLY,

THROUGHOUT THE

YEAR.

Columella *de cult. Hort.* lib. 10.

Invigilate viri, tacito nam tempora greſſu
Diffugiunt, nullóque ſono convertitur annus.

LONDON,
Printed by *J. Macock*, for *John Martin*, and *James Alleſtry*, and are to be ſold at their Shop, at the ſign of the Bell in St *Paul's* Church-yard. MDCLXIV.

INTRODUCTION
TO THE
KALENDAR.

AS Paradiſe (*though of* Gods *own* Planting) *had not been* Paradiſe *longer then the* Man *was put into it, to* Dreſs it and to keep it; *ſo, nor will our* Gardens (*as neer as we can contrive them to the reſemblance of that bleſſed Abode*) *remain long in their* perfection, *unleſs they are alſo continually* cultivated. *For when we have ſo much celebrated the life and felicity of an excellent* Gard'ner; *it is not becauſe of the* leiſure *which he enjoys above other men; eaſe and opportunity which miniſters to* volupty, *and inſignificant delights; ſuch as* Fools *derive from ſenſual objects: We dare hardily pronounce it: there is not amongſt* Men *a more laborious life then is that of a good* Gard'ners; *but a labour full of* tranquillity, *and* ſatisfaction; Natural *and* Inſtructive, *and ſuch as (if any) contributes to* Piety *and* Contemplation, Experience, Health *and* Longævity. *In ſum, a condition it is, furniſh'd with the moſt innocent, laudable and pureſt of earthly felicities, and ſuch as does certainly make the neereſt approaches to that* Bleſſed ſtate, *where only they enjoy all things without pains; as thoſe who were lead only by the light of* Nature, *becauſe they could phanſie none more glorious, thought it worthy of entertaining the* Souls *of their departed* Heroes, *and moſt deſerving of Mortals.* Gen. 2. 15.

But to return to the Labour; *becauſe there is nothing* excellent *which is to be attain'd without it: A* Gard'ners *work is never at an end: It begins with the* Year, *and continues to the next: He prepares the* Ground, *and then he* Sows *it; after that he* Plants, *and then he gathers the* Fruits; *but in all the intermedial ſpaces he is careful to dreſs it; ſo as* Columella, *ſpeaking of this continual aſſiduity, tells us, a* Gard'ner *is not only to conſider* prætermiſſas duodecim horas, ſed annum periiſſe, niſi ſua quaque quod inſtat effecerit: Quare, neceſſaria eſt (*ſays he*) Menſtrui cujuſque officii monitio ea, quæ pendet ex ratione ſyderum cœli: *for ſo with the* Poet, De R. R. li. ix.

——— tam ſunt Arcturi Sydera nobis,
Hœdorûmque dies ſervandi, & lucidus anguis;
Quam quibus in patriam ventoſa per æquora vectis
Pontus, & Oſtriferi fauces tentantur Abydi. Geor. 1.

All which duly weigh'd, how precious *the* time *is, how præcipitous the* occaſion, *how many things to be done in their juſt* Seaſon,

and how intolerable a confusion will succeed a small neglect, *after once a* Ground *is in order, we thought we should not attempt an unacceptable* Work, *if* here *we endeavour to present our* Gard'ners *with a compleat* Cycle *of what is requisite to be done throughout every* Moneth *of the* Year: *We say, each* Moneth; *because by dividing it into* Parts *so distinct, the* Order *in which they shall find each* particular *dispos'd, may not only render the* work *more facile and delightsome; but redeem it from that extream confusion, which for want of a constant, and uniform* Method, *we find does so universally distract our ordinary sort of* Gard'ners. *They know not (for the most part) the* Seasons *when* things *are to be done; and when at any time they come to know, there often falls out so many things to be done on the sudden, that some of them must of necessity be neglected for* that *whole* Year, *which is the greatest detriment to this* Mystery, *and frequently irrecoverable. Well therefore did the experienc'd* Columella *put his* Gard'ner *in mind of the fugaciousness of the* Seasons, *and the necessity of being* Industrious, *where he* thus *bespeaks the men of our Profession.*

Invigilate viri, tacito nam tempora gressu
Diffugiunt, nulloque sono convertitur annus.
Colum. de cult. Hort. lib. 10.

Be watchful Sirs, *the* Seasons *haste them out,*
And without noise the Year *is whirl'd about.*

We are yet far from imposing (by any thing we have alledg'd concerning these Menstrual Periods) *those nice and* hypercritical *Puntillos which some* Astrologers, *and such as pursue their* Rules, *seem to oblige our* Gard'ners *to; as if, forsooth, all were lost, and our pains to no purpose, unless the* Sowing *and the* Planting, *the* Cutting *and the* Pruning, *were perform'd in such and such an exact* minute *of the* Moon: In hac autem Ruris disciplina non desideratur ejusmodi scrupulositas. *There are indeed some certain* Seasons, *and* suspecta tempora, *which the prudent* Gard'ner *ought carefully (as much as in him lies) to prevent: But as to the rest, it shall be sufficient that he diligently follow the* Observations *which (by great* Industry) *we have* collected *together, and* here *present him, as so many* Synoptical Tables *calculated for his* Monethly *use, to the end he may pretermit nothing which is under his* Inspection, *and is* necessary; *or distract his* Thoughts *and* Employment *before the* Seasons *require it.*

Col. de R. R. lib. 9. ca. 364.

And now, however This *may seem but a* Trifle *to some who esteem* Books *by the* bulk, *and not the* benefit; *let them not yet* despise *these few ensuing* Pages: *For never was any thing of this* pretence *so fully and ingenuously imparted, I shall not say to the* regret *of all our* Mercenary Gar'dners, *because I have much obligation to some above that* Epithete; *Mr* Rose, Gard'ner *at* Essex-House *to Her* Grace *the* Duchess *of* Somerset, *and Mr* Turner, *formerly of* Wimbleton *in* Surrey; *who being certainly amongst the most* expert *of their* Profession *in* England, *are no less to be* celebrated *for their free* communications

munications *to the* Publick, *by divers* Notes *of theirs, which have furnish'd to this* Design. *And it is from the* Result *of very much* Experience, *and an extraordinary inclination to cherish so innocent and laudable a* diversion, *and to incite an* Affection *in the* Nobles *of this* Nation *towards it, that I* begin *to* open *to them so many of the* Secrets, *and most precious* Rules *of this* Mysterious Art, *without* Imposture, *or invidious* Reserve. *The very* Catalogue *of* Fruits, *and* Flowers, *for the* Orchard *and the* Parterre, *will gratifie the most innocent of the* Senses, *and whoever else shall be to seek a rare and universal* choice *for his* Plantation : *But this is enough.*

Touching the Method, *it is so obvious that there needs no farther direction*; *and the* Consequent *will prove so certain, that a* Work *of the* busiest *pains is by this little* Instrument *rendred the most facile and agreeable, as by which you shall continually preserve your* Garden *in that perfection of* beauty *and* lustre, *without* confusion *or* prejudice : *Nor indeed could we think of a more comprehensive* Expedient, *whereby to assist the frail and torpent* Memory *through so* multifarious *and numerous an* Employment (*the daily* subject *of a* Gard'ners *care*) *then by the* Oeconomy *and* Discipline *into which we have here resolv'd it, and which our Industrious* Gard'ner *may himself be continually* Improving *from his own* Observations *and* Experience.

This Kalendar *might be considerably augmented, and recommend it self to a more* Universal use, *by taking in the* Monethly Employments *of all the parts of* Agriculture, *as they have been* begun *to us in* Columella, Palladius, de Serres, Augustino Gallo, *our* Markham, *and others*; *especially if* well *and* judiciously *applied to our* Climate *and several* Countries : *but it were* here *besides our* Institution, *nor would the* Pages *contain them*; *what is yet found* vacant *has been* purposely *left, that our* Gard'ner *may supply as he finds cause*; *for which reason likewise we have rang'd both the* Fruits *and* Flowers *in* Prime *after somwhat a* promiscuous Order, *and not after the* letters *of the* Alphabet, *that the* Method *might be pursu'd with the least disorder.* *Lastly,*

Col. de R. R. lib. 11. ca. 11. *Pall.* lib. 1. Tit. 1.

The Fruits *and* Flowers *in* Prime *are to be as well considered in relation to their* lasting *and* continuance, *as to their* maturity *and* beauty.

J. E.

Kalendarium Hortenſe.

≈

Note that for the Riſing *and* Setting *of the* Sun, *and* Length *of the* Days, *I compute from the* firſt *of every* Moneth, London Elevation.

Sun { riſes-08h-00m / ſets -04 -00 } **JANUARY** { Hath Days xxxi. } long-8h-00m

To be done

In the *Orchard*, and *Olitory-Garden*.

Trench the Ground, and make it ready for the *Spring*: prepare alſo *Soil*, and uſe it where you have occaſion: Dig *Borders*, *&c.* *uncover* as yet *Roots* of *Trees*, where *Ablaqueation* is requiſite.

Plant *Quick-ſets*, and Tranſplant *Fruit-trees*, if not finiſh'd: Set *Vines*; and begin to *prune* the *old*: *Prune* the branches of *Orchard-fruit-trees*; *Nail*, and trim your *Wall-fruit*, and *Eſpaliers*.

Cleanſe *Trees* of *Moſs*, *&c.* the *Weather* moiſt.

Gather *Cyons* for *Graffs* before the *buds* ſprout; and about the later end, *Graff* them in the *Stock*: Set *Beans*, *Peaſe*, *&c.*

Sow alſo (if you pleaſe) for early *Colly-flowers*.

Sow *Chervil*, *Lettuce*, *Radiſh*, and other (more delicate) *Sallетings*; if you will raiſe in the *Hot-bed*.

In over wet, or hard weather, *cleanſe*, *mend*, *ſharpen* and prepare *Garden-tools*.

Turn up your *Bee-hives*, and ſprinkle them with a little warm and ſweet *Wort*; do it dextrouſly.

Fruits in *Prime*, and yet *laſting*.

Apples.

Kentiſh-pepin, *Ruſſet-pepin*, *Golden-pepin*, *French-pepin*, *Kirton-pepin*, *Holland-pepin*, *John-apple*, Winter-*Queening*, *Marigold*, *Harvey-apple*, *Pome-water*, *Pome-roy*, *Golden-Doucet*, *Reineting*, *Lones-pearmain*, Winter-*Pearmain*, *&c.*

Pears.

Winter-*Muſk* (bakes well) Winter-*Norwich* (excellently baked) Winter-*Bergamot*, Winter-*Bon-creſtien*, both *Mural*: the great *Surrein*, *&c.*

≈

Sun { rises-08h-00m / sets -04 -00 }

JANUARY

{ Hath Days xxxi. } long-8h-00m

To be done

In the *Parterre*, and *Flower-Garden.*

SEt up your *Traps* for *Vermin*; especially in your *Nurseries* of *Kernels* and *Stones*, and amongst your *Bulbous-roots*: About the middle of this *Moneth*, plant your *Anemony-roots*, which you will be secure of, without *covering*, or farther trouble: Preserve from too great, and continuing *Rains* (if they happen) *Snow*, and *Frost*, your choicest *Anemonies*, and *Ranunculus*'s sow'd in *September* or *October* for earlier *Flowers*: Also your *Carnations*, and such *Seeds* as are in peril of being wash'd out, or over *chill'd* and *frozen*; covering them with *Mats* and *shelter*, and striking off the *Snow* where it lies too weighty; for it certainly rots, and bursts your early-set *Anemonies* and *Ranunculus*'s, *&c.* unless planted *now* in the *Hot-bed*; for now is the *Season*, and they will *flower* even in *London*. Towards the *end*, earth-up, with fresh and light mould, the *Roots* of those *Auriculas* which the *frosts* may have uncover'd; filling up the *chinks* about the sides of the *Pots* where your choicest are set: but they need not be *hous'd*; it is a hardy Plant.

Flowers in *Prime*, or yet *lasting*.

WInter-*Aconite*, some *Anemonies*, Winter-*Cyclamen*, Black-*Hellebor*, *Brumal-Hyacinth*, *Oriental-Jacynth*, *Levantine-Narcissus*, *Hepatica*, *Prim-roses*, *Laurus-tinus*, *Mezereon*, *Præcoce Tulips*, *&c.* especially, if rais'd in the (*Hot-bed.*) *Note*,

That both these *Fruits*, and *Flowers*, are more *early*, or *tardy*, both as to their prime *Seasons* of *eating*, and perfection of *blowing*, according as the *Soil*, and *Situation* are qualified by *Nature*, or *Accident*. *Note also*,

That in this *Recension* of *Monethly Flowers*, it is to be understood for the *whole* period that any *flower* continues, from its first *appearing*, to its final *withering*.

♓

Sun { rises-07h-17m / sets-04--43 }

FEBRUARY

{ Hath Days xxviii. } long-09h-24m

To be done

In the *Orchard*, and *Olitory-Garden*.

PRune *Fruit-trees*, and *Vines*, as yet. Remove *Graffs* of former years *Grafting*. Cut and lay *Quick-sets*. Yet you may *Prune* some *Wall-fruit* (not finish'd before) the most tender and delicate: But be exceeding careful of the now turgid *buds* and *bearers*; and *trim* up your *Palisade Hedges*, and *Espaliers*. Plant *Vines* as yet, other *Shrubs*, *Hops*, *&c.*

Set all sorts of *Kernels* and *stony Seeds*. Also sow *Beans*, *Pease*, *Radish*, *Parsneps*, *Carrots*, *Onions*, *Garlick*, *&c.* and plant *Potatoes* in your worst ground.

Now is your Season for *Circumposition* by *Tubs* or *Baskets* of *Earth*, and for laying of *Branches* to take root. You may plant forth your *Cabbage-plants*.

Rub *Moss* off your *Trees* after a soaking *Rain*, and scrape and cleanse them of *Cankers*, *&c.* draining away the *wet* (if need require) from the too much moistned *Roots*, and earth up those *Roots* of your *Fruit-trees*, if any were uncover'd. Cut off the *Webbs* of *Caterpillars*, *&c.* (from the Tops of *Twigs* and *Trees*) to burn. Gather *Worms* in the *Evenings* after *Rain*.

Kitchen-Garden herbs may now be planted, as *Parsly*, *Spinage*, and other hardy *Pot-hearbs*. Towards the *middle* or *latter end* of this *Moneth*, till the *Sap* rises briskly, *Graff* in the *Cleft*, and so continue till the last of *March*; they will hold *Apples*, *Pears*, *Cherries*, *Plums*, *&c.* Now also plant out your *Colly-flowers* to have early; and begin to make your *Hot-bed* for the first *Melons* and *Cucumbers*; but trust not altogether to them. Sow *Asparagus*. Lastly,

Half open your *passages* for the *Bees*, or a little before (if *weather* invite;) but continue to feed weak *Stocks*, *&c.*

Fruits in *Prime*, or yet *lasting*.

Apples.

Kentish, *Kirton*, *Russet*, *Holland Pepins*; *Deux-ans*, Winter *Queening*, *Harvey*, *Pome-water*, *Pome-roy*, *Golden Doucet*, *Reineting*, *Lones Pearmain*, Winter *Pearmain*, &c.

Pears.

Bon-Chrestien of Winter, Winter *Poppering*, Little *Dagobert*, &c.

♓

Sun { rises-07h-13m / sets--04--43 }

FEBRUARY

{ Hath Days xxviii. } long-09h-24m

To be done

In the *Parterre*, and *Flower-Garden*.

CONtinue *Vermine Trapps*, &c.

Sow *Alaternus* seeds in *Cases*, or *open beds*; cover them with *thorns*, that the *Poultry* scratch them not out.

Now and then *air* your *Carnations*, in *warm* days especially, and mild *showers*.

Furnish (now towards the end) your *Aviarys* with *Birds* before they couple, *&c.*

Flowers in *Prime*, or yet *lasting*.

WInter *Aconite*, single *Anemonies*, and some double, *Tulips præcoce*, *Vernal Crocus*, *Black Hellebore*, single *Hepatica*, *Persian Iris*, *Leucoium*, *Dens Caninus* three leav'd, *Vernal Cyclamen* white and red, Yellow *Violets* with large leaves, early *Daffodils*, &c.

♈

Sun { rises-06h-19m / sets--05 -41 } MARCH { Hath Days xxxi. / long-11h-22m }

To be done

In the *Orchard*, and *Olitory-Garden*.

YEt *Stercoration* is seasonable, and you may plant what *Trees* are left, though it be something of the latest, unless in very backward or *moist* places.

Now is your chiefest and best time for raising on the Hot-bed *Melons*, *Cucumbers*, *Gourds*, *&c.* which about the *sixth*, *eighth* or *tenth* day will be ready for the Seeds; and eight days after *prick* them forth at distances, according to the *Method*, *&c.*

If you will have them *later*, begin again in ten or twelve days after the first; and so a third time, to make *Experiments*.

Graff all this *Moneth*, unless the *Spring* prove extraordinary forwards.

You may as yet cut *Quick-sets*, and cover such *Tree-roots* as you laid bare in *Autumn*.

Slip and set *Sage*, *Rosemary*, *Lavender*, *Thyme*, *&c.*

Sow in the beginning *Endive*, *Succory*, *Leeks*, *Radish*, *Beets*, *Chard-Beet*, *Scorzonera*, *Parsnips*, *Skirrets*, *Parsley*, *Sorrel*, *Bugloss*, *Borrage*, *Chervil*, *Sellery*, *Smalladge*, *Alisanders*, *&c.* Several of which continue many years without renewing, and are most of them to be *blanch'd* by laying them under *litter* and earthing up.

Sow also *Lettuce*, *Onions*, *Garlick*, *Orach*, *Purslan*, *Turneps* (to have early), monethly *Pease*, *&c.* these *annually*.

Transplant the *Beet-chard* which you sow'd in *August*, to have most ample *Chards*.

Sow also *Carrots*, *Cabbages*, *Cresses*, *Fennel*, *Majoran*, *Basil*, *Tobacco*, *&c.* And *transplant* any sort of *Medicinal Hearbs*.

Mid-*March* dress up and string your *Strawberry-beds*, and uncover your *Asparagus*, spreading and loosning the Mould about them, for their more easie penetrating: Also may you now transplant *Asparagus* roots to make new *Beds*.

By this time your *Bees* sit; keep them close Night and Morning, if the weather prove ill.

Turn your *Fruit* in the Room where it lies, but open not yet the *windows*.

Fruits in *Prime*, or yet *lasting*.

Apples.

GOlden *Ducket*, [*Doucet*] *Pepins*, *Reineting*, *Lones Pearmain*, Winter *Pearmain*, *John Apple*, *&c.*

Pears.

Later *Bon-Chrestein*: Double *Blossom Pear*, *&c.*

♈

Sun { rises-06h-19m / sets--05--41 }

MARCH

{ Hath Days xxxi. } long-11h-22m

To be done

In the *Parterre*, and *Flower-Garden*.

Take, and *binde* up your weakeſt *Plants* and *Flowers* againſt the Windes, before they come too fiercely, and in a moment *proſtrate* a whole *years* labour.

Plant *Box*, *&c.* in *Parterres*. Sow *Pinks*, *Sweet-Williams*, and *Carnations*, from the *middle* to the *end* of this *Moneth*. Sow *Pine-kernels*, *Firr-ſeeds*, *Bays*, *Alaternus*, *Philyrea*, and moſt *perennial Greens*, *&c.* Or you may ſtay till ſomwhat *later* in the *Moneth*. Sow *Auricula-ſeeds* in *pots* or *caſes*, in fine *willow* earth, a little *loamy*; and place what you ſow'd in *October* now in the *ſhade*, and *water* it.

Plant ſome *Anemony* roots to bear late, and ſucceſſively; eſpecially in, and about *London*, where the *Smoak* is any thing tolerable; and if the *Seaſon* be very dry, *water* them well once in *two* or *three* days. *Fibrous* roots may be *tranſplanted* about the middle of this *Moneth*; ſuch as *Hepatica's*, *Primeroſes*, *Auricula's*, *Chammomile*, *Hyacinth Tuberoſe*, *Matricaria*, *Hellebor* and other *Summer Flowers*; and towards the end *Convolvulu's*, *Spaniſh* or ordinary *Jaſmine*.

Towards the *middle*, or latter end of *March* ſow on the *Hot-bed* ſuch Plants as are late bearing *Flowers* or *Fruit* in our *Climate*; as *Balſamine*, and *Balſamum mas*, *Pomum Amoris*, *Datura*, *Æthiopic Apples*, ſome choice *Amaranthus*, *Dactyls*, *Geranium's*, *Hedyſarum Clipeatum*, *Humble*, and *Senſitive* Plants, *Lentiſcus*, *Myrtle-berries* (ſteep'd a while), *Capſicum Indicum*, *Canna Indica*; *Flos Africanus*, *Mirabile Peruſian: Naſturtium Ind: Indian Phaſeoli*, *Volubilis*, *Myrrh*, *Carrobs*, *Maracoc*, ſive *Flos Paſſionis*, and the like *rare* and *exotic* Plants which are brought us from *hot* Countries. Note, That the *Naſturtium Ind.* *African Mary golds*, *Volubilis* and ſome others, will come (though not altogether ſo forwards) in the *Cold-bed* without *Art*: But the *reſt* require much, and conſtant *heat*, and therefore ſeveral *Hot-beds*, 'till the common earth be very warm by the advance of the *Sun*, to bring them to a due ſtature, and perfect their *Seeds*.

About the expiration of this *Moneth* carry into the *ſhade* ſuch *Auriculas*, Seedlings, or *Plants* as are for their *choiceneſs* reſerv'd in *Pots*.

Tranſplant alſo *Carnation ſeedlings*, giving your *Layers* freſh *earth*, and ſetting them in the *ſhade* for a *week*, then likewiſe cut off all the ſick and infected *leaves*.

Now do the *farewell-froſts*, and *Eaſterly-winds* prejudice your choiceſt *Tulips*, and ſpot them; therefore cover ſuch with *Mats* or *Canvas* to prevent *freckles*, and ſometimes deſtruction. The ſame care have of your moſt precious *Anemonies*, *Auricula's*, *Chamæ-iris*, *Brumal Jacynths*, early *Cyclamen*, *&c.* Wrap your ſhorn *Cypreſs* tops with Straw *wiſps*, if the *Eaſtern blaſts* prove very tedious. About the *end* uncover ſome *Plants*, but with *Caution*; for the tail of the *Froſts* yet continuing, and ſharp *windes*, with the ſudden darting heat of the *Sun*, ſcorch and deſtroy them in a moment; and in ſuch *weather* neither *ſow*, nor *tranſplant*.

Sow *Stock-gilly-flower*-ſeeds in the *Full* to produce double *flowers*.

Now may you ſet your *Oranges*, *Lemmons*, *Myrtils*, *Oleanders*, *Lentiſcs*, *Dates*, *Aloes*, *Amomums*, and like tender Trees and Plants in the *Portico*, or with the *windows*, and *doors* of the *Green-houſes* and *Conſervatories* open for eight or ten days before *April*, or earlier, if the *Seaſon* invite, to acquaint them gradually with the *Air*; but truſt not the *Nights*, unleſs the *weather* be thorowly ſetled. Laſtly,

Bring in materials for the *Birds* in the *Aviary* to build their *Neſts* withall.

Flowers in *Prime*, or yet *laſting*.

Anemonies, Spring *Cyclamen*, Winter *Aconite*, *Crocus*, *Bellis*, white and black *Hellebor*, ſingle, and double *Hepatica*, *Leucoion*, *Chamæ-iris* of all colours, *Dens Caninus*, *Violets*, *Fritillaria*, *Chelidonium* ſmall with double Flower, *Hermodactyls*, *Tuberous Iris*, *Hyacinth Zeboin*, *Brumal*, *Oriental*, *&c.* *Junquils*, great *Chalic'd.* *Dutch Mezereon*, *Perſian Iris*, *Auricula's*, *Narciſſus* with large tufts, common, double and ſingle. *Primeroſes*, *Præcoce Tulips*, *Spaniſh Trumpets* or *Junquilles*; *Violets*, yellow *Dutch Violets*, *Crown Imperial*, *Grape Flowers*, *Almonds* and *Peach-bloſſoms*, *Rubus odoratus*, *Arbor Judæ*, *&c.*

♉

Sun { rises-05h-18m / sets--05 -42 }

APRIL

{ Hath Days xxxi. } { long-13h-23m }

To be done

In the *Orchard*, and *Olitory-Garden*.

SOw sweet *Majoran*, *Hyssop*, *Basile*, *Thyme*, Winter-*Savory*, *Scurvey-grass*, and all fine and tender *Seeds* that require the *Hot-bed*.

Sow also *Lettuce*, *Purslan*, *Caully-flower*, *Radish*, &c.

Plant *Artichock-slips*, &c.

Set *French-beans*, &c.

You may yet slip *Lavander*, *Thyme*, *Rose-mary*, &c.

Towards the *middle* of this *moneth* begin to plant forth your *Melons*, and *Cucumbers*, and so to the *later end*; your *Ridges* well prepar'd.

Gather up *Worms*, and *Snails*, after evening *showers*, continue this also after all Summer-rains.

Open now your *Bee-hives*, for now they *hatch*; look carefully to them, and prepare your *Hives*, *&c.*

Fruits in *Prime*, and yet *lasting*.

Apples.

PEpins, *Deuxans*, *West-berry-apple*, *Russeting*, *Gilly-flowers*, flat *Reinet*, &c.

Pears.

Later *Bon-crestien*, *Oak-pear*, *&c.* double *Blossom*, *&c.*

♂

Sun { rises-05ʰ-18ᵐ / sets -05 -42 }

APRIL

{ Hath Days xxxi. } long-13ʰ-23ᵐ

To be done

In the *Parterre*, and *Flower-Garden.*

SOw divers *Annuals* to have *Flowers* all *Summer*; as double *Mari-golds*, *Cyanus* of all sorts, *Candy-tufts*, Garden *Pansy*, *Muscipula*, *Scabious*, &c.

Continue *new*, and fresh *Hot-beds* to entertain such *exotic* plants as arrive not to their perfection without them, till the *Air* and *common-earth* be qualified with sufficient *warmth* to preserve them abroad: A *Catalogue* of these you have in the former *Moneth.*

Transplant such *Fibrous-roots* as you had not finish'd in *March*; as *Violets*, *Hepatica*, *Primroses*, *Hellebor*, *Matricaria*, &c.

Sow *Pinks*, *Carnations*, *Sweet-Williams*, &c. to *flower* next year: this after rain.

Set *Lupines*, &c.

Sow also yet *Pine-kernels*, *Firr-seeds*, *Phillyrea*, *Alaternus*, and most *perennial Greens.*

Now take out your *Indian Tuberoses*, parting the *Off-sets* (but with care, lest you break their *fangs*) then *pot* them in *natural* (not *forc'd*) Earth; a layer of *rich* mould *beneath*, and *about* this natural *earth* to nourish the *fibers*, but not so as to touch the *Bulbs:* Then plunge your *pots* in a *Hot-bed* temperately *warm*, and give them no *water* till they *spring*, and then *set* them under a *South-wall*: In dry weather *water* them freely, and expect an incomparable *flower* in *August:* Thus likewise treat the *Narcissus* of *Japan*, or *Garnsey-Lilly* for a later *flower*, and make much of this *precious* Direction.

Water *Anemonies*, *Ranunculus*'s, and Plants in *Pots* and *Cases* once in two or three days, if *drouth* require it. But carefully protect from violent *storms* of *Rain*, *Hail*, and the too parching *darts* of the *Sun*, your *Pennach'd Tulips*, *Ranunculus's*, *Anemonies*, *Auricula's*; covering them with *Mattresses* supported on *cradles* of *hoops*, which have now in readiness. Now is the *Season* for you to bring the choice and tender *shrubs*, *&c.* out of the *Conservatory*; such as you durst not adventure forth in *March:* let it be in a *fair* day; only your *Orange-trees* may remain in the *house* till *May*, to prevent all danger.

Now, towards the *end* of *April*, you may *Transplant*, and *Remove* your tender *shrubs*, *&c.* as *Spanish Jasmines*, *Myrtils*, *Oleanders*, young *Oranges*, *Cyclamen*, *Pomegranats* &c. but first let them begin to *sprout*; placing them a *fort-night* in the *shade:* but about *London* it may be better to defer this work till mid-*August*, *Vide* also *May:* Prune now your *Spanish Jasmine* within an *inch* or two of the *stock*; but first see it begin to *shoot.* Mow *Carpet-walks*, and ply *Weeding*, &c.

Towards the *end* (if the cold *winds* are past) and especially after *showers*, Clip *Philyrea*, *Alaternus*, *Cypress*, *Box*, *Myrtils*, *Barba Jovis*, and other *tonsile* shrubs, *&c.*

Flowers in *Prime*, or yet *lasting.*

ANemonies, *Ranunculus's*, *Auricula Ursi*, *Chamæ-Iris*, *Crown Imperial*, *Caprifolium*, *Cyclamen*, *Dens Caninus*, *Fritillaria*, double *Hepatic's*, *Jacynth* starry, double *Daisies*, *Florence-Iris*, tufted *Narcissus*, white, double and common, *English* double: *Prime-rose*, *Cow-slips*, *Pulsatilla*, *Ladies-smock*, *Tulips* medias, *Ranunculus's* of *Tripoly*, white *Violets*, *Musk-Grape-flower*, *Parietaria Lutea*, *Leucoium*, *Lillies*, *Pæonies*, double *Jonquils*, *Muscaria* revers'd, *Cochlearia*, *Periclymenum*, *Acanthus*, *Lilac*, *Rose-mary*, *Cherries*, *Wall-pears*, *Almonds*, *Abricots*, *Peaches*, *White-thorn*, *Arbor Judæ* blossoming, *&c.*

II

Sun { rises-04h-25m / sets -07--35 }

MAY

{ Hath Days xxxi } long-15h-09m

To be done

In the *Orchard*, and *Olitory-Garden*.

SOw *Sweet-Majoran*, *Basil*, *Thyme*, hot and *Aromatic Herbs* and *Plants* which are the most tender.

Sow *Purslan*, to have young: *Lettice*, large-sided *Cabbage*, painted *Beans*, *&c.*

Look carefully to your *Mellons*; and towards the *end* of this *Moneth*, forbear to *cover* them any longer on the *Ridges* either with *Straw*, or *Mattresses*, *&c.*

Ply the *Laboratory*, and distill *Plants* for *Waters*, *Spirits*, *&c.*

Continue *Weeding* before they run to *Seeds*.

Now set your *Bees* at full *Liberty*, look out often, and expect *Swarms*, *&c.*

Fruits in *Prime*, or yet *lasting*.

Apples.

PEpins, *Deuxans* or *John-apples*, *West-berry-apples*, *Russeting*, *Gilly-flower-apples*, the *Maligar*, &c. *Codling*.

Pears.

Great *Kairville*, Winter-*Bon-Cretienne*, Double-*Blossom-pear*, &c.

Cherries, *&c.*

The *May-Cherry*. *Straw-berries*, &c.

II

Sun { rises-04h-25m / sets -07 -35 }

MAY

{ Hath Days xxxi. } long-15h-09m.

To be done

In the *Parterre*, and *Flower-Garden*.

NOw bring your *Oranges*, *&c.* boldly out of the *Conservatory*; 'tis your only *Season* to *Transplant*, and *Remove* them: let the *Cases* be fill'd with *natural-earth* (such as is taken the first half *spit*, from just under the *Turf* of the best *Pasture* ground) mixing it with one part of rotten *Cow-dung*, or very mellow *Soil* screen'd and prepar'd some time before; if this be too *stiff*, sift a little *Lime* discreetly with it: Then *cutting* the *Roots* a little, especially at bottom, set your *Plant*; but not too *deep*; rather let some of the *Roots* appear: Lastly, *settle* it with temperate *water* (not too much) having put some *rubbish* of *Brick-bats*, *Lime-stones*, *shells*, or the like at the bottom of the *Cases*, to make the *moisture* passage, and keep the *earth* loose: Then set them in the *shade* for a *fort-night*, and afterwards expose them to the *Sun*.

Give now also all your *hous'd-plants* fresh *earth* at the *surface*, in place of some of the old *earth* (a hand-depth or so) and loosning the rest with a *fork* without wounding the *Roots*: let this be of excellent rich *soil*, such as is throughly consum'd and will *sift*, that it may *wash in* the *vertue*, and comfort the *Plant*: *Brush*, and *cleanse* them likewise from the *dust* contracted during their Enclosure: *These two last directions have till now been kept as considerable* Secrets *amongst our* Gard'ners: *vide August* and *September*.

Shade your *Carnations* and *Gilly-flowers* after *mid-day* about this *Season*: Plant also your *Stock-gilly-flowers* in beds, full *Moon*.

Gather what *Anemony-seed* you find ripe, and that is worth saving, preserving it very dry.

Cut likewise the *Stalks* of such *Bulbous-flowers* as you find dry.

Towards the *end*, take up those *Tulips* which are dri'd in the *stalk*; covering what you find to lie *bare* from the *Sun* and *showers*.

Flowers in *Prime*, or yet *lasting*.

LAte set *Anemonies* and *Ranunculus omn. gen. Anapodophylon*, *Chamæ-iris Angustifol. Cyanus*, *Columbines*, *Caltha palustris*, double *Cotyledon*, *Digitatis*, *Fraxinella*, *Gladiolus*, *Geranium*, *Horminum Creticum*, yellow *Hemerocallis*, strip'd *Jacynth*, early *Bulbous Iris*, *Asphodel*, yellow *Lilies*, *Lychnis*, *Jacea*, *Bellis* double, white and red, *Millefolium luteum*, *Lilium Convallium*, *Span. pinkes*, *Deptford-pinke*, *Rosa* common, *Cinnamon*, *Guelder* and *Centifol.* &c. *Syringa*'s, *Sedum*'s, *Tulips* Serotin, &c. *Valerian*, *Veronica* double and single, *Musk Violets*, *Ladies Slipper*, *Stock-gilly-flowers*, *Spanish Nut*, *Star-flower*, *Chalcedons*, ordinary *Crow-foot*, red *Martagon*, *Bee-flowers*, *Campanula*'s white and blew, *Persian Lilly*, *Hony-suckles*, *Buglosse*, *Homers Moly*, and the white of *Dioscorides*, *Pansys*, *Prunella*, purple *Thalictrum*, *Sisymbrium* double and simple, *Leucoium bulbosum serotinum*, *Rose-mary*, *Stæchas*, *Barba Jovis*, *Laurus*, *Satyrion*, *Oxyacanthus*, *Tamariscus*, *Apple-blossoms*, &c.

♋

Sun { rises-03h-51m / sets -08--09 }

JUNE

{ Hath Days xxx. } { long-h16-17m }

To be done

In the *Orchard*, and *Olitory-Garden*.

SOw *Lettuce*, *Chervil*, *Radiſh*, *&c.* to have young, and tender *Salleting*.

About the *midſt* of *June* you may Inoculate *Peaches*, *Abricots*, *Cherries*, *Plums*, *Apples*, *Pears*, &c.

You may now alſo (or before) cleanſe *Vines* of exuberant *branches* and *tendrels*, cropping (not cutting) and ſtopping the *joynt* immediately before the *Bloſſome*, and ſome of the under branches which bear no *fruit*; eſpecially in young *Vineyards* when they firſt begin to *bear*, and thence forwards.

Gather *Herbs* in the *Full*, to keep *dry*; they keep and retain their *virtue*, and *ſweet ſmell*, better *dry'd* in the *Sun*, then *ſhade*, whatever ſome pretend.

Now is your *Seaſon* to diſtill *Aromatic Plants*, *&c.*

Water lately planted *Trees*, and put moiſt, and half rotten *Fearn*, *&c.* about the foot of their *Stems*.

Look to your *Bees* for *Swarms*, and *Caſts*; and begin to deſtroy *Inſects* with *Hoofes*, *Canes*, and tempting *baits*, *&c*, Gather *Snails* after *Rain*, *&c.*

Fruits in *Prime*, or yet *laſting*.

Apples.

Uniting (firſt ripe) *Pepins*, *John-apples*, *Robillard*, Red-*Fennouil*, *&c.*

French

The *Maudlin* (firſt ripe) *Madera*, *Green-Royal*, St. *Laurence-pear*, *&c.*

Cherries, *&c.*

Duke, *Flanders*, *Heart* { Black. / Red. / White. }

Luke-ward; early *Flanders*, the *Common-cherry*, *Spaniſh*-black, *Naples* Cherries, *&c.*

Raſberries, *Corinths*, *Straw-berries*, *Melons*, &c.

♋

Sun { rises-03h-51m / sets -08 -09 }

JUNE

{ Hath Days xxx. } long-16h-17m.

To be done

In the *Parterre*, and *Flower-Garden.*

TRansplant *Autumnal Cyclamens* now if you would change their place, otherwise let them *stand.*

Gather the ripe *seeds* of *Flowers* worth the saving, as of choicest *Oriental Jacynth*, *Narcissus* (the two lesser, pale spurious *Daffodels* of a whitish green, often produce varieties) *Auriculas*, *Ranunculus*'s, *&c.* and preserve them dry: Shade your *Carnations* from the afternoons *Sun.*

Take up your rarest *Anemonies*, and *Ranunculus*'s after rain (if it come seasonable) the *stalk* wither'd, and dry the *roots* well: This about the *end* of the *moneth:* In mid *June* Inoculate *Jasmine*, *Roses*, and some other rare *shrubs.* Sow now also some *Anemony seeds.* Take up your *Tulip-bulbs*, burying such immediately as you find naked upon your *beds*; or else *plant* them in some *cooler* place; and *refresh* over parched *beds* with water. Plant your *Narcissus* of *Japan* (that rare flower) in *Pots*, *&c.* Also may you now take up all such *Plants* and *Flower-roots* as endure not well out of the ground, and *replant* them again immediately: such as the early *Cyclamen*, *Jacynth Oriental*, and other *bulbous Jacynths*, *Iris*, *Fritillaria*, *Crown-Imperial*, *Martagon*, *Muscaris*, *Dens Caninus*, *&c.* The *slips* of *Myrtil* set in some *cool* and *moist* place do now frequently take *root:* Also *Cytisus lunatus* will be multiplied by slips, such as are an *handful long* of that *Spring.* Look now to your *Aviary*; for now the *Birds* grow *sick* of their *Feathers*; therefore assist them with *Emulsions* of the *cooler seeds bruis'd* in their *water*, as *Melons*, *Cucumbers*, *&c.* Also give them *Succory*, *Beets*, *Groundsell*, *Chick-weed*, &c.

Flowers in *Prime*, or yet *lasting.*

Amaranthus, *Antirrhinum*, *Campanula*, *Clematis Pannonica*, *Cyanus*, *Digitalis*, *Geranium*, *Horminum Creticum*, *Hieracium*, *bulbous Iris*, and divers others, *Lychnis var. generum*, *Martagon* white and red, *Millefolium* white and yellow, *Nasturtium Indicum*, *Carnations*, *Pinks*, *Ornithogalum*, *Pansy*, *Phalangium Virginianum*, *Larks-heel* early, *Pilosella*, *Roses*, *Thlaspi Creticum*, &c. *Veronica*, *Viola pentaphyl. Campions* or *Sultans*, *Mountain Lilies* white, red: double *Poppies*, *Stock-gilly-flowers*, *Jasmines*, *Corn-flag*, *Hollyhoc*, *Muscaria*, *Serpyllum Citratum*, *Phalangium Allobrogicum*, *Oranges*, *Rose-mary*, *Lentiscus*, *Pome-Granade*, the *Lime-tree*, &c.

♌

Sun { rises-04h-00m / sets -08--00 } JULY { Hath Days xxxi. / long-15h-59m }

To be done

In the *Orchard*, and *Olitory-Garden*.

SOw *Lettuce*, *Radiſh*, *&c.* to have tender *ſalleting*.

Sow *later Peaſe* to be ripe ſix weeks after *Michaelmas*.

Water young planted *Trees*, and *Layers*, *&c.* and prune now *Abricots*, and *Peaches*, ſaving as many of the *young* likelieſt *ſhoots* as are well placed; for the now *Bearers* commonly periſh, the *new ones* ſucceeding: Cut *cloſe* and *even*.

Let ſuch *Olitory-herbs* run to *ſeed* as you would ſave.

Towards the *latter end*, viſit your *Vineyards* again, *&c.* and *ſtop* the exuberant *ſhoots* at the *ſecond joynt* above the *fruit*; but not *ſo* as to expoſe it to the *Sun*.

Now begin to ſtreighten the *entrance* of your *Bees* a little; and help them to *kill* their *Drones* if you obſerve too many; ſetting *Glaſſes* of *Beer* mingled with *Hony* to entice the *Waſps*, *Flyes*, *&c.* which waſte your *ſtore*: Alſo hang *Bottles* of the ſame *Mixture* neer your *Red-Roman-Nectarines*, and other tempting *fruits*, for their deſtruction; elſe they many times invade your beſt *Fruit*.

Look now alſo diligently under the *leaves* of *Mural-Trees* for the *Snails*; they ſtick commonly ſomewhat *above* the *fruit*: pull not *off* what is *bitten*; for then they will certainly begin a *freſh*.

Fruits in *Prime*, or yet *laſting*.

Apples.

DEux-ans, *Pepins*, Winter *Ruſſeting*, *Andrew-apples*, *Cinnamon-apple*, red and white *Juniting*, the *Margaret-apple*, &c.

Pears.

The *Primat*, *Ruſſet-pears*, *Summer-pears*, green *Cheſil-pears*, *Pearl-pear*, &c.

Cherries.

Carnations, *Morella*, *Great-bearer*, *Morocco-cherry*, the *Egriot*, *Bigarreaux*, &c.

Peaches.

Nutmeg, *Iſabella*, *Perſian*, *Newington*, *Violet-muſcat*, *Rambouillet*.

Plums, *&c.*

Primordial, *Myrobalan*, the red, blew, and amber *Violet*, *Damaſc.* *Denny Damaſc.* *Pear-plum*, *Damaſc.* *Violet*, or *Cheſon-plum*, *Abricot-plum*, *Cinnamon-plum*, the *Kings-plum*, *Spaniſh*, *Morocco-plum*, *Lady Eliz.* *Plum*, *Tawny*, *Damaſcene*, &c.

Rasberries, *Gooſe-berries*, *Corinths*, *Straw-berries*, *Melons*, &c.

♌

Sun { rises-04h-00m / sets--08--00 }

JULY

{ Hath Days xxxi. } long-15h-59m

To be done

In the *Parterre*, and *Flower-Garden.*

SLip *Stocks*, and other *lignous Plants* and *Flowers*: From henceforth to *Michaelmas* you may also lay *Gilly-flowers* and *Carnations* for *Increase*, leaving not above *two*, or three *spindles* for *flowers*, with *supports*, *cradles* and *hoofes*, to establish them against *winds*, and destroy *Earwigs*.

The *Layers* will (in a *moneth* or *six weeks*) strike *root*, being *planted* in a *light loamy earth* mix'd with excellent *rotten soil* and *siefted*: plant six or eight in a *pot* to save *room* in *Winter*: keep them well from too much *Rains*: But *shade* those which *blow* from the afternoons *Sun*, as in the former *Moneths*.

Yet also you may lay *Myrtils*, and other curious *Greens*.

Water young planted *Shrubs* and *Layers*, *&c.* as *Orange-trees*, *Myrtils*, *Granads*, *Amomum*, *&c.* clip *Box*, *&c.* in *Parterres*, *Knots*, and *Compartiments*, if need be, and that it grow out of *order*; do it after *Rain*.

Graff by *Approach*, *Inarch* or *Inoculate Jasmines*, *Oranges*, and other your choicest *shrubs*.

Take up your early *autumnal Cyclamen*, *Tulips* and *Bulbs* (if you will *Remove* them, *&c.*) before mention'd; *Transplanting* them *immediately*, or a *Moneth* after if you please, and then cutting off, and trimming the *fibres*, spread them to *Air* in some *dry* place.

Gather now also your early *Cyclamen-seeds*, and *sow* it presently in *Pots*.

Likewise you may *take up* some *Anemonies*, *Ranunculus's*, *Crocus*, *Crown Imperial*, *Persian Iris*, *Fritillaria*, and *Colchicums*, but plant the three last as soon as you have taken them up, as you did the *Cyclamens*.

Remove now *Dens Caninus*, *&c.*

Latter end of *July sieft* your *Beds* for *Off-sets* of *Tulips*, and all *Bulbous-roots*, also for *Anemonies*, *Ranunculus's*, *&c.* which will prepare it for *re-planting* with such things as you have ready in *pots* to plunge, or set in *naked* earth till the next *season*; as *Amaranths*, *Canna Ind. Mirabile Peruv. Capsicum Ind. Nasturt. Ind.* &c. that they may not lie empty, and dis-furnish'd.

Continue to *cut off* the wither'd *stalks* of your lower *flowers*, *&c.* and all others, covering with *earth* the *bared* roots, *&c.*

Now (in the *driest season*) with *Brine*, *Pot-ashes* and *water*, or a *decoction* of *Tobacco refuse*, water your *Gravel-walks*, *&c.* to destroy both *Worms* and *Weeds*, of which it will *cure* them for some *years*.

Flowers in *Prime*, or yet *lasting.*

Amaranthus, *Campanula*, *Clematis*, *Sultana*, *Veronica* purple and odoriferous; *Digitalis*, *Eryngium Planum*, *Ind. Phaseolus*, *Geranium triste*, and *Creticum*, *Lychnis Chalcædon. Jacea* white and double, *Nasturt. Ind. Millefolium*, *Musk-rose*, *Flos Africanus*, *Thlaspi Creticum*, *Veronica mag. & parva*, *Volubilis*, *Balsam-apple*, *Holy-hock*, *Snapdragon*, *Corn-flo. Alkekengi*, *Lupines*, *Scorpion-grass*, *Caryophyllata om. gen. Stock-gilly-flo. Indian Tuberous Jacynth*, *Limonium*, *Linaria Cretica*, *Pansies*, *Prunella*, *Delphinium*, *Phalangium*, *Periploca Virgin. Flos Passionis*, *Flos Cardinalis*, *Oranges*, *Amomum Plinii*, *Oleanders* red and white, *Agnus Castus*, *Arbutus*, *Yucca*, *Olive*, *Ligustrum*, *Tilia*, &c.

♌

Sun { rises-04h-43m / sets -07 -17 } **AUGUST** { Hath Days xxxi. } long-14h-33m

To be done

In the *Orchard*, and *Olitory-Garden*.

INoculate now *early*, if before you began not.

Prune off yet also superfluous *Branches*, and *shoots* of this *second spring*; but be careful not to expose the *fruit*, without leaves sufficient to *skreen* it from the *Sun*; *furnishing*, and *nailing* up what you will spare to cover the defects of your *Walls*. Pull up the *Suckers*.

Sow *Raddish*, *tender Cabages*, *Cauly-flowers* for *Winter Plants*, *Corn-sallet*, *Marygolds*, *Letuce*, *Carrots*, *Parsneps*, *Turneps*, *Spinage*, *Onions*; also curl'd *Endive*, *Angelica*, *Scurvy-grass*, &c.

Likewise now pull up ripe *Onions* and *Garlic*, &c.

Towards the *end* sow *Pursian*, *Chard-Beet*, *Chervile*, &c.

Transplant such *Letuce* as you will have abide all *Winter*.

Gather your *Olitory Seeds*, and *clip* and cut all such *Herbs* and *Plants* within one *handful* of the *ground* before the *full*. Lastly,

Unbind and release the *Buds* you *inoculated* if taken, &c.

Now *vindemiate* and take your *Bees* towards the expiration of this *Moneth*; unless you see cause (by reason of the *Weather* and *Season*) to defer it till mid-*September*: But if your *Stocks* be very *light* and weak, begin the earlier.

Make your Summer *Perry* and *Cider*.

Fruits in *Prime*, or yet *lasting*.

Apples.

THe *Ladies Longing*, the *Kirkham* Apple, *John* Apple; the *Seaming* Apple, *Cushion* Apple, *Spicing*, *May-flower*, *Sheeps-snout*.

Pears.

Windsor, *Soveraign*, *Orange*, *Bergamot*, *Slipper* Pear, *Red Catherine*, *King Catherine*, *Denny* Pear, *Prusia* Pear, Summer *Poppering*, *Sugar* Pear, *Lording* Pear, &c.

Peaches.

Roman Peach, *Man* Peach, *Quince* Peach, *Rambouillet*, *Musk* Peach, *Grand Carnation*, *Portugal* Peach, *Crown* Peach, *Bourdeaux* Peach, *Lavar* Peach, the Peach *De-Spot*, *Savoy Malacoton*, which lasts till *Michaelmas*, &c.

Nectarines.

The *Muroy* Nectarine, *Tawny*, Red-*Roman*, little *Green* Nectarine, *Cluster* Nectarine, *Yellow* Nectarine.

Plums.

Imperial, Blew, White *Dates*, Yellow *Pear-plum*, Black *Pear-plum*, White *Nutmeg*, late *Pear-plum*, Great *Anthony*, *Turkey* Plum, the *Jane* Plum.

Other Fruit.

Cluster-grape, *Muscadine*, *Corinths*, *Cornelians*, *Mulberies*, *Figs*, *Filberts*, *Melons*, &c.

♍

Sun { rises-04h-43m / sets--07--17 }

AUGUST

{ Hath Days xxxi. } long-14h-33m

To be done

In the *Parterre*, and *Flower-Garden.*

NOw (and not till *now* if you expect *ſucceſs*) is the juſt *Seaſon* for the *budding* of the *Orange* Tree: *Inoculate* therefore at the commencement of this *Moneth.*

Now likewiſe take up your *bulbous Iris*'s; or you may ſow their *ſeeds*, as alſo thoſe of *Larks-heel*, *Candi-tufts*, *Columbines*, *Iron-colour'd Fox-gloves*, *Holly-hocks*, and ſuch Plants as endure *Winter*, and the approaching *Seaſons.*

Plant ſome *Anemony* roots to have *flowers* all *Winter*, if the *roots* eſcape.

You may now ſow *Narciſſus*, and *Oriental Jacynths*, and re-plant ſuch as will not do well out of the *Earth*, as *Fritillaria*, *Iris*, *Hyacinths*, *Martagon*, *Dens Caninus*.

Gilly-flowers may yet be *ſlipp'd.*

Continue your taking up of *Bulbs*, *Lilies*, &c. of which before.

Gather from day to day your *Alaternus* ſeed as it grows black and ripe, and ſpread it to *ſweat* and *dry* before you put it up; therefore *move* it ſometimes with a *broom* that the *ſeeds* clog not together.

Moſt other *Seeds* may now likewiſe be gathered from *ſhrubs*, which you find ripe.

About mid-*Aug.* tranſplant *Auricula*'s, dividing old and luſty *roots*; alſo prick out your *Seedlings*: They beſt like a *loamy ſand*, or light moiſt *Earth.*

Now you may ſow *Anemony* ſeeds, *Ranunculus*'s, &c. lightly cover'd with fit mould in *Caſes*, ſhaded, and frequently *refreſh'd*: Alſo *Cyclamen*, *Jacynths*, *Iris*, *Hepatica*, *Primroſes*, *Fritillaria*, *Martagon*, *Fraxinella*, *Tulips*, *&c.* but with *patience*; for ſome of them, becauſe they *flower* not till three, four, five, ſix, and ſeven years after, eſpecially the *Tulips*, therefore diſturb not their *beds*, and let them be under ſome *warm* place, *ſhaded* yet, till the *heats* are paſt, leſt the *ſeeds* dry; only the *Hepaticas*, and *Primeroſes* may be ſow'd in ſome leſs expos'd *Beds.*

Now, about *Bartholomew-tide*, is the only *ſecure ſeaſon* for *removing* and *laying* your *perennial Greens*, *Oranges*, *Lemmons*, *Myrtils*, *Philyreas*, *Oleanders*, *Jaſmines*, *Arbutus*, and other rare *Shrubs*, as *Pome-granads*, *Roſes*, and whatever is moſt obnoxious to *froſts*, taking the *ſhoots* and *branches* of the paſt *Spring* and *pegging* them down in very *rich earth* and *ſoil* perfectly conſum'd, *water* them upon all occaſions during the *Summer*; and by this time *twelve-moneth* they will be ready to *remove*, *Tranſplanted* in fit earth, ſet in the *ſhade*, and kept moderately *moiſt*, not *over* wet, leſt the young *fibers* rot; after three weeks ſet them in ſome more airy place, but not in the *Sun* till fifteen days more; *Vide* our *Obſervations* in *April*, and *May*, for the reſt of theſe choice *Directions.*

Flowers in *Prime*, or yet *laſting.*

Amaranthus, *Anagallis Luſitanica*, *Aſter Atticus*, *Blattaria*, *Spaniſh Bells*, *Belvedere*, *Campanula*, *Clematis*, *Cyclamen Vernum*, *Datura Turcica*, *Eliochryſon*, *Eryngium planum & Amethyſtinum*, *Geranium Creticum*, and *Triſte*, Yellow *Stocks*, *Hieracion minus Alpeſtre*, *Tuberoſe Hyacinch*, *Limonium*, *Linaria Cretica*, *Lychnis*, *Mirabile Peruvian.* Yellow *Millefol. Naſturt. Ind.* Yellow mountain *Hearts-eaſe*, *Maracoc*, *Africanus flos*, *Convolvulus's*, *Scabious*, *Aſphodils*, *Lupines*, *Colchicum*, *Leucoion*, *Autumnal Hyacinth*, *Holly-hoc*, *Star-wort*, *Heliotrop*, *French Mary-gold*, *Daiſies*, *Geranium nocte olens*, Common *Panſies*, *Larks-heels* of all colours, *Nigella*, *Lobells Catch-fly*, *Thlaſpi Creticum*, *Roſemary*, *Musk-Roſe*, *Monethly Roſe*, *Oleanders*, *Spaniſh Jaſmine*, Yellow *Indian Jaſmine*, *Myrtils*, *Oranges*, *Pome-granads* double, and ſingle flowers, *Agnus Caſtus*, *&c.*

♍

Sun { rises-05h-41m / sets -06--19 } **SEPTEMBER** { Hath Days xxx. / long-12h-37m }

To be done

In the *Orchard*, and *Olitory-Garden*.

GAther now (if ripe) your *Winter Fruits*, as *Apples*, *Pears*, *Plums*, *&c.* to prevent their *falling* by the great *Winds*: Also gather your *Wind-falls* from day to day: do this work in *dry* weather.

Sow *Lettuce*, *Radish*, *Spinage*, *Parsneps*, *Skirrets*, &c. *Cauly-flowers*, *Cabbages*, *Onions*, &c. *Scurvy-grass*, *Anis-seeds*, &c.

Now may you *Transplant* most sorts of *Esculent*, or *Physical* plants, *&c.*

Also *Artichocks*, and *Asparagus-roots*.

Sow also *Winter Herbs* and *Roots*, and plant *Straw-berries* out of the *Woods*.

Towards the *end*, earth up your *Winter Plants* and *Sallad herbs*; and plant forth your *Cauly-flowers* and *Cabbages* which were sown in *August*.

No longer now defer the *taking* of your *Bees*, streightning the *entrances* of such *Hives* as you leave to a small *passage*, and continue still your *hostility* against *Wasps*, and other robbing *Insects*.

Cider-making continues.

Fruits in *Prime*, or yet *lasting*.

Apples.

THe *Belle-bonne*, the *William*, Summer *Pearmain*, *Lording-apple*, *Pear-apple*, *Quince-apple*, *Red-greening ribb'd*, *Bloody-Pepin*, *Harvey*, *Violet-apple*, &c.

Pears.

Hamdens Bergamot, (first ripe) Summer *Bon Chrestien*, *Norwich*, *Black Worcester*, (baking) *Green-field*, *Orange*, *Bergamot*, the *Queen* hedge-pear, *Lewes-pear* (to dry excellent) *Frith-pear*, *Arundel-pear* (also to bake) *Brunswick-pear*, winter *Poppering*, *Bings-pear*, *Bishops-pear*, (baking) *Diego*, *Emperours-pear*, *Cluster-pear*, *Messire Jean*, *Rowling-pear*, *Balsam-pear*, *Bezy d' Hery*, &c.

Peaches, *&c.*

Malacoton, and some others, if the year prove backwards, *Almonds*, &c.

Quinces.

Little *Blew-grape*, *Muscadine-grape*, *Frontiniac*, *Parsley*, great *Blew-grape*, the *Verjuyce-grape* excellent for sauce, *&c.*

Berberries, &c.

♍

Sun { rises-05h-41m / sets--06--19 } **SEPTEMBER** { Hath Days xxx. } long-12h-37m

To be done

In the *Parterre*, and *Flower-Garden.*

PLant some of all the sorts of *Anemonies* after the first *Rains*, if you will have *flowers* very forwards; but it is surer to attend till *October*, or the *Moneth* after, lest the over *moisture* of the *Autumnal* seasons give you cause to repent.

Begin now also to *plant* some *Tulips*, unless you will stay till the later end of *October*, to prevent all hazard of *rotting* the *Bulbs*.

All *Fibrous* Plants, such as *Hepatica*, *Hellebor*, *Cammomile*, *&c.* Also the *Capillaries*; *Matricaria*, *Violets*, *Prim-roses*, *&c.* may now be *transplanted.*

Now you may also continue to sow *Alaternus*, *Philyrea* (or you may forbear till the *Spring*) *Iris*, *Crown Imper. Martagon*, *Tulips*, *Delphinium*, *Nigella*, *Candy-tufts*, *Poppy*; and generally all the *Annuals* which are not impair'd by the *Frosts.*

Your *Tuberoses* will not endure the wet of this *Season*; therefore set the *Pots* into your *Conserve*, and keep them very *dry.*

Bind now up your *Autumnal Flowers*, and *Plants* to *stakes*, to prevent sudden *Gusts* which will else prostrate all you have so industriously rais'd.

About *Michaelmas* (sooner, or later, as the *Season* directs) the weather *fair*, and by no means *foggy*, retire your choice *Greens*, and rarest *Plants* (being *dry*) as *Oranges*, *Lemmons*, *Indian*, and *Span. Jasmine*, *Oleanders*, *Barba-Jovis*, *Amomum Plin. Cytisus Lunatus*, *Chamelæa tricoccos*, *Cistus Ledon Clusij*, *Dates*, *Aloes*, *Sedum's*, *&c.* into your *Conservatory*; ordering them with fresh *mould*, as you were taught in *May*, *viz.* taking away some of the upmost *exhausted* earth, and *stirring* up the rest, fill the Cases with rich, and well consum'd *soil*, to wash in, and nourish the Roots during *Winter*; but as yet leaving the *doors* and *windows* open, and giving them much *Air*, so the *Winds* be not sharp, nor weather *foggy*; do thus till the *cold* being more intense advertise you to *enclose* them all together: *Myrtils* will endure abroad neer a *Moneth* longer.

The *cold* now advancing, set such *plants* as will not endure the *House* into the *earth*; the *pots* two or three *inches* lower then the *surface* of some *bed* under a *Southern* expositure: Then *cover* them with *glasses*, having *cloath'd* them first with sweet and dry *Moss*; but upon all *warm*, and benigne *emissions* of the *Sun*, and sweet *showers*, giving them *air*, by taking off all that covers them: Thus you shall preserve your *costly* and precious *Marum Syriacum*, *Cistus's*, *Geranium nocte olens*, *Flos Cardinalis*, *Maracocs*, seedling *Arbutus's* (a very hardy plant when greater) choicest *Ranunculus's* and *Anemonies*, *Acacia Ægypt. &c.* Thus governing them till *April.* Secrets not till now divulg'd.

Note that *Cats* will eat, and destroy your *Marum Syriac.* if they can come at it.

Flowers in *Prime*, or yet *lasting.*

Amaranthus tricolor, and others; *Anagallis* of *Portugal*, *Antirrhinum*, *African flo. Amomum Plinii*, *After Atticus*, *Belvedere*, *Bellis*, *Campanulla's*, *Colchicum*, *Autumnal Cyclamen*, *Chrysanthemum angustifol. Eupatorium* of *Canada*, *Sun-flower*, *Stock-gill. flo. Geranium Creticum*, and *nocte olens*, *Gentianella annual*, *Hieracion minus Alpestre*, *Tuberous Indian Jacynth*, *Linaria Cretica*, *Lychnis Constant.* single and double; *Limonium*, *Indian Lilly Narciss. Pomum Aureum*, and *Amoris*, *& Spinosum Ind.* Marvel of *Peru*, *Mille-folium* yellow, *Nasturtium Indicum*, *Persian autumnal Narcissus*, *Virginian Phalangium*, *Indian Phaseolus*, *Scarlet Beans*, *Convolvulus* divers. gen. *Candy Tufts*, *Veronica*, purple *Volubilis*, *Asphodill. Crocus*, *Garnsey Lily*, or *Narcissus* of *Japan*, *Poppy* of all colours, single, and double, *Malva arborescens*, *Indian Pinks*, *Æthiopic Apples*, *Capsicum Ind. Gilly-flowers*, *Passion-flower*, *Datura* double and sing. *Portugal Ranunculus's*, *Spanish Jasmine*, yellow *Virginian Jasmine*, *Rhododendron* white and red, *Oranges*, *Myrtils*, *Muske Rose*, and *Monethly Rose*, &c.

m

Sun { rises-06h-26m / sets--05 -24 } **OCTOBER** { Hath Days xxxi. } long-10h-47m

To be done

In the *Orchard*, and *Olitory-Garden*.

Trench Grounds for *Orcharding*, and the *Kitchin-garden*, to lye for a *Winter* mellowing.

Plant dry *Trees* (i.) *Fruit* of all sorts, *Standard*, *Mural*, or *Shrubs* which lose their *leafe*; and that so soon as it *falls*: But be sure you chuse no *Trees* for the *Wall* of above *two* years *Graffing* at the most.

Now is the time for *Ablaqueation*, and laying *bare* the *Roots* of old *unthriving*, or over *hasty blooming* trees.

Moon now *decreasing*, gather *Winter-fruit* that remains, weather dry; take heed of *bruising*, lay them up *clean* lest they *taint*, *Cut* and prune *Roses* yearly.

Plant and Plash *Quick-sets*.

Sow all *stony*, and hard *kernels* and *seeds*, such as *Cherry*, *Pear-plum*, *Peach*, *Almond-stones*, *&c.* Also *Nuts*, *Haws*, *Ashen*, *Sycomor* and *Maple* keys; *Acorns*, *Beech-mast*, *Apple*, *Pear* and *Crab* kernels, for *Stocks*; or you may defer it till the next *Moneth* towards the later end.

You may yet sow *Letuce*.

Make Winter *Cider*, and *Perry*.

Fruits in *Prime*, or yet *lasting*.

Apples.

Belle-et-Bonne, *William*, *Costard*, *Lording*, *Parsley*-apples, *Pearmain*, *Pear-apple*, *Hony-meal*, *Apis*, &c.

Pears.

The *Caw-pear* (baking) *Green-butter-pear*, *Thorn-pear*, *Clove-pear*, *Rousselpear*, *Lombart-pear*, *Russet-pear*, *Suffron-pear*, and some of the former *Moneth*. *Bullis*, and divers of the *September Plums* and *Grapes*, *Pines*, &c.

m

Sun { rises-06h-26m / sets -05--24 }

OCTOBER

{ Hath Days xxxi. } { long-10h-47m }

To be done

In the *Parterre*, and *Flower-Garden.*

NOw your *Hyacinthus Tuberose* not enduring the *wet*, must be set into the *house*, and preserved very *dry* till *April.*

Continue *sowing* what you did in *Sept.* if you please: Also,

You may *plant* some *Anemonies*, and *Ranunculus's*, in fresh *sandish earth*, taken from under the *turf*; but lay richer *mould* at the *bottom* of *the bed*, which the *fibres* may reach, but not touch the main *roots*, which are to be cover'd with the *natural earth* two inches deep: and so soon as they appear, secure them with *Mats*, or *Straw*, from the *winds* and *frosts*, giving them *air* in all benigne *intervals*; if possible *once* a day.

Plant also *Ranunculus's* of *Tripoly*, *&c.*

Plant now your choice *Tulips*, *&c.* which you feared to *interre* at the beginning of *September*; they will be more secure, and forward enough: but plant them in *natural earth* somewhat *impoverish'd* with very fine *sand*; else they will soon lose their *variegations*; some more *rich earth* may lye at the *bottom*, within reach of the *fibres*: Now have a care your *Carnations* catch not too much *wet*; therefore retire them to *covert*, where they may be kept from the *rain*, not the *air*, trimming them with *fresh mould.*

All sorts of *Bulbous roots* may now also be safely *buried*; likewise *Iris's*, *&c.*.

You may yet sow *Alaternus*, and *Philyrea* seeds: It will now be good to *Beat*, *Roll*, and *Mow Carpet-walks*, and *Camomile*; for now the ground is *supple*, and it will *even* all *inequalities*: Finish your last *Weeding*, *&c.*

Sweep and cleanse your *Walks*, and all other *places*, of *Autumnal leaves* fallen, lest the *Worms* draw them into their *holes*, and foul your *Gardens*, *&c.*

Flowers in *Prime*, or yet *lasting.*

Amaranthus tricolor, &c. *Aster Atticus*, *Amomum*, *Antirrhinum*, *Colchicum*, *Heliotrops*, *Stock-Gilly-flo. Geranium triste*, *Ind. Tuberose Jacynth*, *Limonium*, *Lychnis* white and double, *Pomum Amoris* and *Æthiop. Marvel* of *Peru*, *Millefol. luteum*, *Autumnal Narciss. Pansies*, *Aleppo Narciss. Sphærical Narciss. Nasturt. Persicum*, *Gilly-flo. Virgin. Phalangium*, *Pilosella*, *Violets*, *Veronica*, *Arbutus*, *Span. Jasmine*, *Oranges*, &c.

Sun { rises-07h-34m / sets--04 -26 }

NOVEMBER

{ Hath Days xxx. } { long-08h52-m }

To be done

In the *Orchard*, and *Olitory-Garden*.

CArry *Compost* out of your *Melon-ground*, or turn and *mingle* it with the *earth*, and lay it in *Ridges* ready for the *Spring*: Also *trench* and fit ground for *Artichocks*, &c.

Continue your *Setting* and *Transplanting* of *Trees*; lose no time, hard *Frosts* come on apace: Yet you may lay *bare* old *Roots*.

Plant young Trees *Standards*, or *Mural*.

Furnish your *Nursery* with *Stocks* to *graff* on the following year.

Sow and *set* early *Beans* and *Pease* till *Shrove-tide*; and now lay up in your *Cellars* for *Seed*, to be *transplanted* at *Spring*, *Carrots*, *Parsneps*, *Turneps*, *Cabbages*, *Cauly-flowers*, &c.

Cut off the *tops* of *Asparagus*, and *cover* it with *long-dung*, or make *Beds* to *plant* in *Spring*, &c.

Now, in a *dry* day, gather your last *Orchard-fruits*.

Take up your *Potatos* for *Winter* spending, there will enough remain for stock, though never so exactly gather'd.

Fruits in *Prime*, or yet *lasting*.

Apples.

THe *Belle-bonne*, the *William*, Summer *Pearmain*, *Lording*-apple, *Pear-apple*, *Cardinal*, Winter *Chess-nut*, *Short-start*, &c. and some others of the former *two* last *Moneths*, &c.

Pears.

Messire Jean, *Lord-pear*, long *Bergamot*, *Warden*, (to bake) *Burnt Cat*, *Sugar-pear*, *Lady-pear*, *Ice-pear*, *Dove-pear*, *Deadmans-pear*, *Winter Bergamot*, *Bell-pear*, &c.

Bullis, *Medlars*, *Services*.

♐

Sun { rises-07h-34m / sets--04--26 }

NOVEMBER

{ Hath Days xxx. } long-08h-52m

To be done

In the *Parterre*, and *Flower-Garden*.

SOw *Auricula* seeds thus; prepare very *rich earth*, more then half dung, upon that *sieft* some very light *sandy mould*; and then *sow:* set your *Cases* or *Pans* in the *Sun* till *March*.

Cover your peeping *Ranunculus's*, *&c.*

Now is your best *season* (the weather *open*) to *plant* your fairest *Tulips* in places of *shelter*, and under *Espaliers*; but let not your *earth* be too *rich*, *vide Octob.* *Transplant* ordinary *Jasmine*, *&c.*

About the *middle* of this *Moneth* (or sooner, if *weather* require) quite *enclose* your *tender* Plants, and *perennial Greens*, *Shrubs*, *&c.* in your *Conservatory*, secluding all entrance of *cold*, and especially sharp *winds*; and if the *Plants* become exceeding *dry*, and that it do not actually *freeze*, refresh them *sparingly* with *qualified water* (i.) mingled with a little *Sheeps*, or *Cow-dung:* If the *season* prove exceeding piercing (which you may know by the *freezing* of a *dish* of *water* set for that purpose in your *Green-house*) kindle some *Charcoals*, and then put them in a *hole* sunk a little into the *floor* about the middle of it: This is the safest *Stove:* At all other times, when the *air* is warm'd by the *beams* of a fine *day*, and that the *Sun* darts full upon the *house* shew them the light; but enclose them again before the *Sun* be gone off: Note that you must never give your *Aloes*, or *Sedums* one drop of *water* during the whole *Winter*.

Prepare also *Mattresses*, *Boxes*, *Cases*, *Pots*, *&c.* for *shelter* to your tender *Plants* and *Seedlings* newly sown, if the *weather* prove very bitter.

Plant *Roses*, *Althæa Frutex*, *Lilac*, *Syringas*, *Cytisus*, *Peonies*, &c.

Plant also *Fibrous roots*, specified in the precedent *Moneth*.

Sow also *stony-seeds* mention'd in *Octob.*

Plant all *Forest-trees* for *Walks*, *Avenues*, and *Groves*.

Sweep and cleanse your *Garden-walks*, and all other places, of *Autumnal* leaves.

Flowers in *Prime*, or yet *lasting*.

Anemonies, *Meadow Saffron*, *Antirrhinum*, *Stock-gilly-flo.* *Bellis*, *Pansies*, some *Carnations*, double *Violets*, *Vetonica*, *Spanish Jasmine*, *Musk-Rose*, &c.

♍

Sun { rises-08h-10m / sets--03 -50 } **DECEMBER** { Hath Days xxxi. / long-07h-40m }

To be done

In the *Orchard*, and *Olitory-Garden*.

PRune, and Nail *Wall-fruit*, and *Standard-trees*.
You may now plant *Vines*, &c.
Also *Stocks* for *Graffing*, &c.
Sow, as yet, *Pomace* of *Cider-pressings* to raise *Nurseries*; and set all sorts of *Kernels*, *Stones*, &c.
Sow for early *Beans* and *Peaſe*, but take heed of the *Frosts*; therefore *surest* to defer it till after *Christmas*, unless the *Winter* promise very *moderate*.
All this *Moneth* you may continue to *Trench* Ground, and *dung* it, to be ready for *Bordures*, or the planting of *Fruit-trees*, &c.
Now *feed* your *weak Stocks*.
Turn and *refresh* your *Autumnal Fruit*, lest it *taint*, and open the *Windows* where it lyes, in a clear and *Serene* day.

Fruits in *Prime*, and yet *lasting*.

Apples.

ROusseting, *Leather-coat*, Winter *Reed*, *Chess-nut* Apple, *Great-belly*, the *Go-no-further*, or *Cats-head*, with some of the precedent *Moneth*.

Pears.

The *Squib-pear*, *Spindle-pear*, *Virgin*, *Gascogne-Bergomot*, *Scarlet-pear*, *Stopple-pear*; white, red and *French Wardens* (to bake or rost) &c.

♑

Sun { rises-08h-10m / sets -03 -50 }

DECEMBER

{ Hath Days xxxi. } long-07h-40m

To be done

In the *Parterre*, and *Flower-Garden.*

AS in *January*, continue your *hostility* against *Vermine.*

Preserve from too much *Rain* and *Frost* your choicest *Anemonies*, *Ranunculus's*, *Carnations*, *&c.*

Be careful now to keep the *Doors* and *Windows* of your *Conservatories* well *matted*, and guarded from the piercing *Air:* for your *Oranges*, *&c.* are now put to the *test:* Temper the *cold* with a few *Char-coal* govern'd as directed in *November*, *&c.*

Set *Bay-berries*, *&c.* dropping ripe.

Look to your *Fountain-pipes*, and cover them with fresh and *warm Litter* out of the *Stable*, a good *thickness*, lest the *frosts* crack them; remember it in *time*, and the *Advice* will save you both trouble and charge.

Flowers in *Prime*, or yet *lasting.*

ANemonies some, *Persian*, and *Common* winter *Cyclamen*, *Antirrhinum*, *Black Hellebor*, *Laurus tinus*, single *Prim-roses*, *Stock-gilly-flo. Iris Clusii*, *Snow flowers* or *drops*, *Yucca*, &c.

FOr by ſuch a *Kalendar* it is that a *Royal Garden*, or *Plantation* may be contriv'd, according to my Lord *Verulam*'s deſign, *proſingulis Anni Menſibus*, for every *Moneth* of the *Year*.

But becauſe it is in this *cold Seaſon*, that our *Gard'ner* is chiefly diligent about preſerving his more *tender*, *rare*, *exotic*, and *coſtly Shrubs*, *Plants* and *Flowers*; We have thought fit to add the *Catalogue*, as it is (much after this ſort) *collected* to our hands by the *Learned*, and Induſtrious Doctor *Sharrock* (though with ſome *reformation* and *improvement*) of all *ſuch*, as according to their different *Natures* do require more or *leſs* indulgence: And theſe we have diſtributed likewiſe into the *three* following *Claſſes*.

I. CLASSE.

Being leaſt *patient* of *cold*, and therefore to be *firſt* ſet into the *Conſervatory*, or other ways defended.

Acacia Ægyptiaca, Aloe American. Amaranthus tricolor, Aſpalathus Cret. Balſamum, Helichryſon, Chamelæa tricoccos, Naſturtium Indicum, Indian Narciſſus, Ornithogalon Arab. Ind. Phaſeol. Capſicum Ind. Pomum Æthiop. Aureum, Spinoſum, Summer *Sweet Majoran*, the two *Marum Syriacum, Dactyls, Piſtacio's*, the great *Indian Fig, Lilac flo. alb. Lavendula Multif. Cluſ. Ciſtus Raguſæus flo. alb. Colutea Odorata Cretica, Narciſſus Tuberoſus, Styrax Arbor*, &c.

II. CLASSE.

Enduring the ſecond degree of *Cold*, and accordingly to be *ſecur'd* in the *Conſervatory*.

Amomum Plinii, Carob, Chamelæa Alpeſtris, Ciſtus Ledon Cluſ. Citron, Vernal Cyclamen, Summer *purple Cyclamen, Digitalis Hiſpan. Geranium triſte, Hedyſarum Clypeatum, Aſpalathus Creticus, Span. Jaſmine, Virgin. Jaſmine, Suza Iris, Jacobæa Marina, Alexandrian Laurel, Oleanders, Limonium elegans, Myrtyls, Oranges, Lentiſcus, Levantine tufted Narciſſus, Gill. flo.* and choiceſt *Carnations, Phalangium Creticum, Aſiatic* double and ſingle *Ranunculus's, Narciſſus* of *Japan, Cytiſus rubra, Canna Indica, Thymus capitatus, Verbena nodi flo. Cretica*, &c.

III. CLASSE.

Which not *periſhing* but in exceſſive *Colds*, are therefore to be *laſt* ſet in; or rather *protected* under *Mattreſſes*, and ſleighter *Coverings*, abroad in the *Earth*, *Caſes*, *Boxes* or *Pots*, &c.

Abrotonum maſ. fæm. Winter *Aconite, Adiantum Verum, Bellis Hiſpan. Calceolus Mariæ, Capparis, Cineraria, Cneorum Matthioli, Cytiſus Maranthæ, rub. Lunatus, Eryngium planum totum Cæruleum, Fritillaria mont. Geniſta Hiſpan. flo. alb. Pom-Granads, Oriental Jacynth, Bulbous Iris, Laurels, Cherry Laurel, Lychnis* double white; *Matricaria* double flo. *Olives, Pancration, Papaver ſpinociſſ. Maracoc, Roſe-mary, Siſyrichium, Turpentine-tree, Teucrium*

um mas Tithymal. Myrtifol. Vetonica doub. flo. ſingle *Violets*, *Lavender*, *Serpentaria trifol. &c. Ornithogalon Arab.* white and doub. *Narciſſus* of *Conſtantinople*, late *Pine-apples*, *Moly*, *Perſian Jaſmine*, *Opuntia*, or the ſmaller *Indian Fig*, *Jucca*, *Seſeli Æthiop. Agnus Caſtus*, *Malva Arboreſcens*, *Ciſtus maſ. Althæa Frutex*, *Sarſaparilla*, *Cupreſſus*, *Crithmum marinum*, *&c.*

And to *theſe* might ſome others be *added*; but we conceive them *ſufficient*, and more then (we fear) ſome *envious* and *mercenary Gard'ners* will *thank* us for; but they deſerve not the *name* of that *Communicative* and noble *Profeſſion:* However, *this*, as a *Specimen* of our *Affection* to the *publick utility*, and in *Commiſeration* of divers *honourable*, and Induſtrious *perſons*, whoſe *Inclination* to this *innocent Toil* has made them ſpare no *Treaſure* or *Pains* for the *furniture* of their *Parterres* with *variety*, the *miſcarriage* whereof being ſometimes *univerſal* to the *Curious*, has made us the more *freely* to *impart* both what we have *experimentally* learn'd by our own *Obſervations*, and from *others* of undoubted *Candor* and *Ingenuity:* But of this we promiſe a more ample *Illuſtration* as it concerns the intire *Art*, together with all its *Ornaments* of *Uſe* and *Magnificence*, as theſe *Endeavours* of ours ſhall find *entertainment*, and *opportunity* contribute to the *Deſign*.

FINIS.

ERRATA.

Vulnera ſanentur citiùs quàm ſentiantur.

EPiſt. to the K. r. more equal. To the Reader, r. *homine libero.*
Pag. 8. lin. 20. r. *Civic.* 48. this large ſpreading *ſhould be read with the third* Paragraph *without any break.* p. 16. l. 29. r. other. 38. r. *French Elm.* 22. 5. for *Ormus* r. *Fraxinus.* 25. 18. for uſe r. *Wood.* 27. 10. r. *Nobleſſe.* 29. 1. *&c.* r. *Sycomor* in all that *Chapter.* 42. 11. r. ſtayes. 47. 2. *dele* of. 49. 3, 24. r. *Bretaigne.* 52. 5. for *Hulls* r. *Nuts.* 55. 32. r. tree does. 37. r. renders. 57. 34. r. gatherd? 67. 4. for ſhade r. ſhoot. 73. 25. r. *ad aera.* 80. 43. r. *Aventine.* 81. 2. r. *juxta.* 8. *Tyburtin.* 82. 18. r. Fraiting. 83. 41. r. in apt Soil. 47. by a *Couper.* 84. 5. r. four ſquare Beams of four and fourty foot long each of them. 14. r. *Wotton.* 87. 18. r. or thirty. 40. for ſale r. ſole. 88. 31. for out ſide r. one ſide. 104. 16. r. *læves.* 25. *Tiliæ,* 29. *Aminicolæque.* 35. *Palmæ,* by a miſtake of the *æ.* 114. 33. r. miſchievouſly. 119. 22. r. ſuggeſted.
The *Breaks* and *Poſitions* of ſome of the *Figures* and *Paragraphs,* with *literal* miſtakes and *miſpunctations,* require the *Readers* benevolence.

ERRATA.

Pomona.

In *Præf.* p. 4. l. 37. *dele* as. 5. 32. for extracted r. experienc'd. 7. 6. r. perform'd it. 13. 2. for prepar'd r. proſper'd. l. 32. r. affect. 25. 11. r. *Lauremberg.* 35. 50. r. (two or three times.

ERRATA.

Kalendarium Hortenſe.

Introd. p. 57. l. 4. r. *Nobleſſe.* 59. 8. for *ſhuts* r. *Mats.* 63. 17. r. *Peruvian.* 64. 2. r. *Oſitory.* 66. 1. r. hath days xxxi. 68. 9. r. in the *Shade* then *Sun.* 69. 25. r. *Campanula.* 70. 28. r. *Morocco.* 75. 39. r. *Naſturtium.* 80. 12. for *Seed* r. feed. 83. 7. r. mercenary.